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# Rural Poverty Unperceived: Problems and Remedies

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**Summary.** – The thesis of this paper is that there are major obstacles to perceiving the nature and the extent of rural poverty in developing countries. These obstacles originate not only in the nature of rural poverty itself, but also in the condition of those, not themselves of the rural poor, who do or, more significantly, do not perceive that poverty. The argument has implications for all rural development programmes and projects, and for the training of staff. The conclusion is that reversals of current positions and practices are required if the obstacles are to be surmounted, if the nature and the extent of rural poverty are to be truly appreciated, and if future actions are to be tailored to the actual needs of the rural poor.

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## 1. AN OVERVIEW

This paper argues that in developing countries poor rural people and rural poverty generally are underperceived or misperceived by those who are themselves neither poor nor rural. This process can be understood, first, in terms of the obstacle presented by global cores and peripheries of knowledge, with poor, weak, rural people at the peripheries and rich, powerful urban-based professionals at the cores; and, second, in terms of the obstacle raised by the integrated nature of rural poverty, especially by the isolation of the poor. A major associated influence on, or obstacle to, the perceptions of urban-based outsiders is that of rural development tourism – the phenomenon of the brief rural visit. It is widely practised but little analysed. These three obstacles to perception are discussed in Section 2.

When examined, rural development tourism is found to exhibit six biases against contact with poverty and poor or poorer people. These are spatial biases – urban, tarmac and roadside; project biases – the tendency for projects to be visited to the neglect of non-project areas where less is being done; person biases – contacts with the less poor and more influential rural people, with men rather than women, with users of services and adopters of new practices rather than non-users and non-adopters, and with those who are active, present and living; dry-season bias – the tendency for visits to be made during tropical dry seasons when poverty is less marked, rather than during the lean, hungry and sick periods of wet seasons; biases of politeness and of timidity, with visitors not wishing to offend through seeking out those who are poorer; and professional biases which illuminate only part of poverty and not the whole. These biases interlock and reinforce each other, whether in rural development tourism, in much of rural research, or in the behaviour of junior officials in rural areas. As a result rural poverty is systematically underperceived or misperceived. The six biases are analysed in Section 3.

Remedial action, discussed in Section 4, is not easy, but changes in cognition and behaviour may be sought in at least half a dozen ways: through improving rural development tourism; through techniques for rapid rural appraisal (RRA); through poverty-oriented research to be carried out by officials as part of in-service training; through role-playing in poverty games; through reversing the learning process so that urban-based outsiders become the pupils and rural insiders their teachers; and through rewards

* This paper was originally written as a Background Study for the *World Development Report* 1980. The views and interpretations in this paper are those of the author and do not necessarily reflect those of the World Bank Group.

† For comments on earlier versions of this paper I am grateful fo Mick Moore, Hans Singer and World Bank staff who took part in a seminar to discuss a draft. Responsibility for what is written is mine alone.

of prestige and promotion for work with the rural poor.

A brief conclusion (Section 5) points out that these measures, while no panacea, may constitute one feasible set of thrusts for reducing rural poverty.

## 2. THE OBSTACLES TO PERCEPTION

The thesis of this paper is that there are major obstacles to perceiving the nature and extent of rural poverty in Third-World countries. These obstacles originate not only in the nature of rural poverty itself, but also in the condition of those, not themselves of the rural poor, who do or, more significantly, do not perceive that poverty. The argument has implications for all rural development programmes and projects, and for the training of staff. The conclusion is that reversals of current positions and practices are required if the obstacles are to be surmounted, if the nature and extent of rural poverty are to be truly appreciated, and if future actions are to be tailored to the actual needs of the rural poor. First, however, the obstacles themselves must be delineated.

### (a) *The context of cognitive problems*

The argument is set in a context of cores and peripheries of knowledge. Globally, these in turn reflect a gradient from extremes of wealth to extremes of poverty. In this system there coexist rich, urban, industrialized, high-status cores and poor, rural, agricultural and low-status peripheries. In the cores there is a mutual attraction and reinforcement of power, prestige, resources, professionals, professional training, and the capacity to generate and disseminate knowledge. Both internationally, and within individual developing countries, centripetal forces draw resources and educated people in towards the cores and away from the peripheries. At the international level, brain drains are a well-known phenomenon. But there are similar movements within developing countries. The urban web attracts and then traps professionals, holding them fast with better houses, services, schools and career prospects. Domestic cycles and career patterns reinforce the flow. Young, unmarried officials are sent to remote poor rural areas, but age, marriage, children, seniority and responsibility draw them in towards larger and larger urban and administrative centres. Academic researchers do their fieldwork in rural areas when they are young and inexperienced, but when they become older and more experienced, they too are trapped in towns by family, teaching and promotional responsibilities and prospects. As people grow older and more influential, so too they move further from rural life. They also become busier. In international agencies, in national ministries or departments, or at the subnational level, they become increasingly involved in rural development only at the policy level. Correspondingly, it becomes increasingly likely that their only first-hand experience of rural conditions will now be through brief visits. The more influential, important and busy they become, the more such visits are likely to be selective and formally structured. The more powerful such professionals become, the less contact they have with rural poverty.

There are other cognitive problems over and above the basic aspects of actual contact with rural poverty. University education and professional training impart an assortment of biases. These are variously urban, industrial, high-technology, capital-intensive, appropriate for temperate climates, and market- rather than subsistence-oriented. Textbooks, curricula, examinations, professional journals, academic awards, national and international distinctions, professional values and ideas of sophistication, the media, the priority accorded to armaments and security, the desire of elites for international mobility – these are among the interlocking influences which shape ambitions, mould ways of seeing things, and sway choices as to where in the world one is to work. The cognitive apparatus formed by education and training is often specialized. Its blinkers allow only a narrow view, and most professionals do not in any case face towards, let alone live in, rural areas. Those that do have often been disabled by their conditioning. Their attention is thus directed towards those with whom they have most in common – the less poor rural people. They form their often temporary links with whatever they can find in rural areas which is familiar, that is, whatever is modern, marketed, urban in origin, and sophisticated. Accordingly, they see, and prescribe for, only that specialized part of the whole for which their training has prepared them. At its ugliest, such professional training inculcates an arrogance in which superior knowledge and superior status are assumed. Professionals then see the rural poor as ignorant, backward and primitive, and as people who have only themselves to blame for their poverty. Social Darwinism then lives again in the ideologies of the prosperous and therefore virtuous urban élites looking out

on the rural mass, the poverty of whose members reflects their lack of virtue. The very phrase – 'the rural mass' – fosters stereotypes, convenient glosses hiding ignorance of the reality. Not only do urban-based professionals and officials often not know the rural reality; worse, they do not know that they do not know.

These outspoken assertions have, of course, to be qualified. Many initiatives are sensitive to rural poverty: programmes for primary health care, adult education, appropriate technology, off-season employment, research on the subsistence crops of poor people, and so on. But an exclusive focus on these initiatives can itself distort judgement. Myths of enlightenment can be created and sustained by the enlightened meeting the enlightened, though darkness is all around. A few outstanding individuals, projects and institutions draw attention away from the many others that are less than outstanding. They may also obscure the fact that on the gradients between cores and peripheries there are many points where power, professional authority, and ignorance of rural poverty are to be found clustered together.

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### (b) *Integrated rural poverty*

The cognitive problems of observers are only part of the difficulties encountered in approaching rural poverty. The other part stems from the nature of rural poverty itself. Insofar as attempts are indeed made to push out from the urban cores in order to learn about rural poverty, then it is the poorer people who are most remote and most difficult to reach.

One way of analysing rural poverty or deprivation is in terms of five interlocking dimensions: poverty proper (lack of assets and lack of flows of food and cash); physical weakness (reflected in lower body weights and greater seasonal variation in those weights); vulnerability to contingencies (to irreversible ratchets of impoverishment – the mortgage or sale of assets or the incurring of debts because of sickness, famine, disaster, dowry, bridewealth or other costs); powerlessness (both political and in terms of control of events and relationships); and isolation. All five dimensions contribute to the integrated nature of rural poverty; and the list does not include many other influences – international, intranational, within rural society – which perpetuate and deepen poverty. But for our purposes, isolation deserves special attention; this is the dimension which most impedes the understanding of outsiders, and which by its very nature may be the least easy to recognize.

The isolation of poor familes and households can be described in terms which are spatial, social, and related to knowledge and access. Spatially, poor families tend to be removed from the centre of things: either they are in areas remote from urban centres, or they are on the edges of villages or away from main roads.[1] Socially, they may have fewer relationships on which they can rely: poorer households tend to be smaller, and many of the poorest have female heads. They are illiterate, have no radio, and know little about events beyond their neighbourhood. Their members rarely go to public meetings, receive no advice from extension workers in agriculture health, family planning or nutrition, and travel little, except in search of work. They make less use of services (health, transport, education) than their less poor neighbours. They are either fragmented and scattered as members migrate for work, or trapped in one place by debts and other obligations. Many adopt a low-profile strategy: by accepting powerlessness as a condition for protection, they demonstrate that they will not pose any threat to their patrons. Some, whose legal position is weak, as in the case of self-settling refugees (Chambers, 1979) and squatters (Mbithi and Barnes, 1975), may even try to hide, to be invisible to the official eye. Out of sight, they hope to be out of mind.

### (c) *Rural development tourism*

There are many ways in which urban-based outsiders may learn about rural poverty and the rural poor. Some of the sources are questionnaire surveys, village studies, reports by social anthropologists, findings of medical and nutritional research, censuses, statistics showing the use of services, routine or special reports within government systems or by non-government organizations, and project evaluations. But a major – and perhaps the most important – influence on the perceptions of urban-based outsiders is rural development tourism – rural tourism for short – the phenomenon of the brief rural visit. It influences, and is a part of, all or almost all of the other sources of information listed earlier. It is widespread. There are thousands, perhaps tens of thousands, of instances daily.[2] In spite of its prevalence, rural tourism has not to my knowledge been seriously analysed.[3] This omission is astonishing, until one reflects on the reasons for it. For academic analysis, rural tourism is too dispersed and

ephemeral a phenomenon for easy rigour. It does not rest neatly in any disciplinary domain, and it is barely conceivable as a topic for a thesis. For practical professionals engaged in rural development, it is perhaps too close to the nose to be in focus. Rural tourism is, moreover, a subject of anecdote and an object of shame. It generates stories for bar gossip rather than facts for comparative study, and is associated with memories of personal follies one prefers not to expose to public ridicule. In any event, self-critical introspection is not one of the more prominent characteristics of rural developers. Yet it is through this rural tourism, if at all, that 'core' (urban-based, professional, powerful) visitors see and meet those who are 'peripheral' (rural, uneducated, weak). The brief rural visits by 'core' personnel can scarcely fail to play a key part in forming their impressions and beliefs and influencing their actions and decisions.

The visit of a rural tourist may be for one day or for several. The 'tourists' or visitors may come from a foreign country, a capital city, a seat of regional or provincial government, a district headquarters, or some smaller urban place. Most commonly they are government officials – administrators, health staff, agriculturalists, educators, community developers, engineers, foresters, or inspectors of this and that; but they may also be private technical specialists, academic researchers, the staff of voluntary agencies, journalists, diplomats, politicians, consultants, or the staff of aid agencies. Differing widely in race, nationality, status, profession, age, sex, language, interests, prejudices, conditioning and experience, these visitors nevertheless usually have three things in common: they come from urban areas; they want to find something out; and they are short of time.

Rural tourism has many purposes and many styles. Technical specialists concerned with physical resources may in practice have little contact with the rural residents, and there may be little formality about their visits. Others – those concerned with administration and human development in its various forms – may in contrast be involved in many meetings with rural residents. It is with these kinds of visits that we are primarily concerned.

Caricature is tempting in this context, and exaggeration is built into any process of induction from anecdotes which are repeated and remembered because they make good stories. There are also differences between cultures, environments and individual tourists. The following sketch illustrates the pathology of such visits, especially when they are carried out by people who are treated as important. It is not intended as a balanced portrayal.

The visitor sets out late, delayed by last-minute business, by colleagues, by a family crisis, by a cable or telephone call, by others taking part in the same visit, by mechanical or administrative problems with vehicles, by urban traffic jams, or by any one of a hundred forms of human error. Even if the way is not lost, there is enough fuel, and there are no breakdowns, the programme still runs behind schedule. The visitor is encapsulated, first in a land-rover, jeep or other vehicle, and later in a moving entourage of officials and local notables (headmen, chairmen of village committees, village accountants, progressive farmers, traders and the like). Whatever their private feelings (indifference, suspicion, amusement, anxiety, irritation or enthusiasm), the rural residents put on their best face and receive the visitor hospitably. According to ecology, economy and culture, the visitor is given goats, garlands, coconut milk, coca-cola, coffee, tea or milk. Speeches are made. Schoolchildren sing or clap. Photographs are taken. Buildings, machines, construction works, new crops, exotic animals, the clinic, the school, the new road are inspected. A self-conscious group (the self-help committee, the women's handicraft group), dressed in their best clothes, are seen and spoken to. They nervously respond in ways which they hope will bring benefits and avoid penalties. There are tensions between the visitor's questions and curiosity, the officials' desire to select what is seen, and the mixed motives of different rural groups and individuals who have to live with the officials and with each other after the visitor has left. Time and an overloaded programme are nevertheless on the side of the hosts. As the day wears on and heats up, the visitor becomes less inquisitive, asks fewer questions, and is finally glad, exhausted and bemused, to retire to the circuit bungalow, the rest house, the guest house, the host's official residence, or back to an urban home or hotel. The village returns to normal, no longer wearing its special face. When darkness falls and people talk more freely, the visitor is not there.

Shortage of time, the importance of the visitor, and the desire for information separately or together influence what is perceived. Lack of time drives out the open-ended question; the visitor imposes meanings through what is asked. Checking is impossible, and prudent, hopeful, or otherwise self-serving lies become accepted as facts. Individually or in groups people are neglected while formal actions and

physical objects are given attention. Refugees in a rural camp in Tanzania said of UN and government officials that 'They come, and they sign the book, and they go' and 'They only talk with the buildings.' A villager in Senegal said to Adrian Adams concerning visitors 'Ils ne savent pas qu'il y a ici des gents vivants' (Adams, 1978). Above all, on such visits, it is the poorer people who tend not to be seen or, especially, to be met.

## 3. RURAL POVERTY UNOBSERVED: THE SIX BIASES

There are many biases against contact with and perceptions of poverty in general, the deepest poverty in particular. They apply not only to rural tourism, but also variously to rural research and to the behaviour and perceptions of low-level staff living and working in rural areas. Six sets of biases stand out.

### (a) *Spatial biases: urban, tarmac and roadside*

Most learning about rural conditions is mediated by vehicles. This applies not only to rural tourism, but also to research. Starting and ending in urban centres, visits follow networks of roads. With rural tourism, the hazards of dirt roads, the comfort of the tourist, the location of places for spending the night, the location of places to visit, and shortages alike of time and, increasingly, of fuel dictate a preference for tarmac roads and for travel close to urban centres. The result is overlapping urban and roadside biases.

Urban bias concentrates rural visits near towns and especially near capital cities and large administrative centres. But the regional distribution of the poorest rural people often shows a concentration in remoter areas – north-eastern Brazil, lower Ukambani in Kenya, the tribal districts of central India. In many parts of the developing world, some of the poorest people are being extruded from those densely populated areas better served with communications and are being forced, in order to survive, to colonize less accessible areas, especially the savannahs and forests. Inaccessible from the urban centres, the poorest of the poor remain largely unseen.

Tarmac and roadside biases also direct attention towards those who are less poor and away from those who are poorer. Visible development follows main roads. Factories, offices, shops and official markets all tend to be at the sides of main roads. Even agricultural development has a roadside bias: in Tamil Nadu agricultural demonstrations of new seeds and fertilizers have been sited beside main roads; and on irrigation systems, roads often follow canals so that the farms seen are those of the 'topenders' who receive more water and not those of the 'tailenders' who receive less or none. Services along roadsides are also better. Edward Heneveld (personal communication) found that two schools beside the main highway from west to north Sumatra had more than their quota of teachers, while a school 1 km off the road had less than its quota. For part of western Kenya, Ssennyonga has described an 'elite roadside ecology' (1976, p. 9). As services are provided along the roadside – improved tarmac surface for the road, buses, electricity, telephone, piped water supply – so those who are better-off buy up roadside plots and build on them. The poorer people shift away out of sight. The visitor then sees the better-off people and their houses, gardens and services, and not the poorer people and theirs. Ribbon development along roadsides gives a false impression in many countries. The better the roads, the nearer the urban centre, and the higher the traffic, so the more pronounced is the roadside development and the more likely visitors are to see it and be misled.

Nor does roadside bias apply only to main roads. Within villages, the poorer people may be hidden from the main streets and the places where people meet. Moore and Wickremesinghe, reporting on a study of three villages in the low country of Sri Lanka, have this to say about 'hidden poverty':

> In retrospect at least, one of the most obvious aspects of poverty in the study villages is the extent to which it is concealed from view . . . the proportion of "poor" households . . . varies from 14% in Wattegama to 41% in Weligalagoda. Yet one could drive along all the motorable roads in the villages and scarcely see a single "poor" house. Here, as in most of rural Sri Lanka, wealthier households use their social and economic power to obtain roadside homestead sites. Not only do these confer easier access to such tangible services as buses, electricity connections or hawkers, but they provide such intangible benefits as better information and gossip from passers-by. Equally, the roadside dweller has a potential site for opening a small shop, especially if located near the all-important road junctions, which provide the focus of commercial and social life in almost all rural areas. *To even see the houses of the poor one often has to leave the road. Many visitors, including public officers, appear not to do so very often.* (Forthcoming, p. 98; emphasis added.)

Much the same can be said of harijan colonies in or near villages in south India.

It is not just officials and rural tourists who are trapped within these biases. Social science researchers are far from immune. There are honourable exceptions, but urban and tarmac biases are sometimes evident in the choice of villages to study. Of all specialists, social anthropologists are perhaps the least susceptible; but even they have sometimes succumbed: as they have grown, Bangalore and Bangkok have each swallowed up a social anthropologist's village. Again, when Indian institutions were urged to adopt villages, two research and training organizations in Bangalore, unknown to each other, included the same village: it can scarcely be a coincidence that it was close to the main Bangalore–Mysore road, a decent but not excessive distance from Bangalore itself. Within villages, too, the central, more prosperous, core is likely to attract researchers. Moore, again describing three villages in Sri Lanka, writes:

> Apart from the roadside issue the core can exercise a great pull on the outsider who decides to do a few days a week of fieldwork. Apart from the facilities and the sense of being at the strategic hub of local affairs, it can claim a sense of history and tradition, to which sociologists especially appear vulnerable. (1979, p. 3.)

Moore considers that sociologists writing on Sri Lanka have focussed on core areas and completely ignored their peripheries. One may speculate about how generally the location of good informants and of facilities at the cores of villages prevents perception by social scientists of the peripheries and of the peripheral people.

Urban bias is further accentuated by fuel shortages and costs. Whenever governments make budget cuts, the travel vote is favourite; it can be trimmed without visible loss. But each cut makes rural contact rarer and harder, and urban and tarmac bias more pronounced. When fuel costs rise dramatically, as they have done in recent years, the effect is especially marked in those poor countries which are without oil and also short of foreign exchange. Rural visits, research and projects shrink back from more distant, often poorer, areas to those which are closer, more prosperous, and cheaper to visit.[4] District agricultural officers in Bangladesh have been severely restricted in the use of their vehicles. Cuts in transport allocations for staff responsible for supervising canal irrigation have occurred in India: likely effects are less supervision leading to less water being provided to the already deprived 'tailends', and less knowledge of what is happening there. Every rise in oil prices not only impoverishes the remoter, poorer people by tilting the urban–rural terms of trade against them more sharply, but also at the same time reduces the chances of that deprivation being known. Visits, attention and projects are increasingly concentrated in the economically advantaged peri-urban areas.

### (b) *Project bias*

Rural tourism and rural research exhibit a strong project bias. Those concerned with rural development and with rural research become linked to networks of urban–rural contacts. They are then pointed to those rural places where something is happening – where money is being spent, staff are stationed, a project is in hand. Ministries, departments, district staff and voluntary agencies all pay special attention to projects and channel visitors towards them. Contact and learning are then with tiny atypical islands of activity which attract repeated and mutually reinforcing attention.

Project bias is most marked with the showpiece: the nicely groomed pet project or model village, specially staffed and supported, with well-briefed members who know what to say, and which is sited a reasonable but not excessive distance from the urban headquarters.[5] Governments in capital cities need such projects for foreign visitors; district and subdistrict staff need them too, for visits by their senior officers. Such projects provide a quick and simple reflex to solve the problem of what to do with visitors or senior staff on inspection. Once again, they direct attention away from the rural poor.

The better known cases concern those rural development projects which have attracted international attention. Any roll of honour would include the Anand Dairy Co-operatives in India; the Chilalo Agricultural Development Unit in Ethiopia; the Comilla Project in Bangladesh; the Gezira Scheme in Sudan; the Intensive Agricultural Districts Programme (IADP) in India; Lilongwe in Malawi; the Muda Irrigation Project in Malaysia; the Mwea Irrigation Settlement in Kenya; and the Ujamaa programme in Tanzania. All of these have been much visited and much studied. Students seeking doctorates have read about them and then sought to do their fieldwork on them.[6] Research generates more research; and investment by donors draws research after it and funds it. In India, the IADP, a programme designed to increase production sharply in a few districts which were well endowed with water, exercised a powerful attraction to research compared to the rest of

India. An analysis (Harriss, 1977, pp. 30–34) of rural social science research published in the *Economic and Political Weekly* showed an astonishing bias to IADP districts, and an almost total neglect of the very poor areas of central India. In a different way, the Comilla Project may also have misled, since Comilla District has the lowest proportion of landless in any district in Bangladesh. Research on ujamaa in Tanzania in the later 1960s focussed heavily on three exceptional villages or clusters of villages (the Ruvuma Development Association, Mbambara and Upper Kitete) which were among the very few in the whole country with substantial communal agricultural production. Research, reports and publications have given all these atypical projects high profiles, and these in turn have generated more interest and more visitors.

Fame forces the managers of such projects into public relations. More and more of their time has to be spent showing visitors around. Flooded with the celebrated, the curious, and the ignorant – prime ministers, graduate students, women's groups, farmers' groups, aid missions, school parties, committees and directors of this and that – managers set up public relations units and develop a public relations style. Visitors then get the treatment. A fluent guide follows a standard routine and a standard route. The same people are met, the same buildings entered,[7] the same books signed, the same polite praise inscribed in the book against the visitors' names. Questions are drowned in statistics; doubts inhibited by handouts. Inquisitive visitors depart loaded with research papers, technical evaluations and annual reports which they will probably never read. They leave with a sense of guilt at the unworthy scepticism which prompted probing questions, and with memories of some of those who are better-off in the special project, and of the charisma of the exceptional leader or manager who has created it. They write their journey reports, evaluations and articles on the basis of these impressions. For their part, the project staff have reinforced through repetition the beliefs which sustain their morale. Thus projects take off into self-sustaining myth.[8]

### (c) *Person biases*

The persons with whom rural tourists, local-level officials and rural researchers have contact, and from whom they obtain impressions and information, are biased against poorer people.

#### (i) *Elite bias*

'Elite' is used here to describe those rural people who are less poor and more influential. They typically include progressive farmers, village leaders, headmen, traders, religious leaders, teachers and paraprofessionals. They are the main sources of information for rural tourists, for local-level officials, and even for rural researchers. They are the most fluent informants. It is they who receive and speak to the visitors; they who articulate 'the village's' interests and wishes; their concerns which emerge as the village's priorities for development. It is they who entertain visitors, generously providing the expected beast or beverage. It is they who receive the lion's share of attention, advice and services from agricultural extension staff (Chambers, 1974, p. 58; Leonard, 1977, Chap. 9). It is they who show visitors the progressive practices in their fields. It is they too, who, at least at first, monopolize the time and attention of the visitor.

Conversely, the poorer or the poorest do not speak up. With those of higher status, they may even decline to sit down. Weak, powerless and isolated, they are often reluctant to push themselves forward. In Devitt's words:

> The poor are often inconspicuous, inarticulate and unorganised. Their voices may not be heard at public meetings in communities where it is customary for only the big men to put their views. It is rare to find a body or institution that adequately represents the poor in a certain community or area. Outsiders and government officials invariably find it more profitable and congenial to converse with local influentials than with the uncommunicative poor. (1977, p. 23.)

The poor are a residual, the last in the line, the most difficult to find, and the hardest to learn from:

> Unless paupers and poverty are deliberately and persistently sought, they tend to remain effectively screened from outside inquirers. (*ibid.* p. 24.)

#### (ii) *Male bias*

Most rural tourists, local-level government staff and researchers are men. Most rural people with whom they establish contact are men. Female farmers are neglected by male agricultural extension workers. In most societies women have inferior status and are subordinate to men. There are variations and exceptions; but quite often women are shy of speaking to visitors, especially to men. And yet poor rural women are a poor and deprived class within a class. They often work very long hours, and they are usually paid less than men. Rural single women,

women heads of households, and widows include many of the most wretched and unseen people in the world.

(iii) *User and adopter biases*

Where visits are concerned with facilities or innovations, the users of services and the adopters of new practices are more likely to be seen than are non-users and non-adopters. This bias applies to visitors who have a professional interest in, say, education, health or agriculture, to local-level officials, and to researchers. They tend to visit buildings and places where activity is concentrated, easily visible, and hence easy to study. Children in school are more likely to be seen and questioned than those children who are not in school; those who use the health clinic more than those who are too sick, too poor, or too distant to use it; those who come to market because they have goods to sell or money with which to buy more than those who stay at home because they have neither; members of the co-operative more than those who are too poor or powerless to join it; those who have adopted new agricultural, health or family planning practices more than those who have not.

(iv) *Active, present and living biases*

Those who are active are more visible than those who are not. Fit, happy, children gather round the jeep or land-rover, not those who are weak and miserable. Dead children are rarely seen. The sick lie in their huts. Inactive old people are often out of sight; a social anthropologist has recorded how he spent some time camping outside a village before he realized that old people were starving (Turnbull, 1973, p. 102). Those who are absent or dead cannot be met; but those who have migrated and those who have died may include many of the most deprived. Much of the worst poverty is hidden by its removal.

### (d) *Dry-season bias*

Most of the poor rural people in the world live in areas of marked wet–dry seasonality, most of it tropical. For the great majority whose livelihoods depend on cultivation the most difficult time of the year is usually the wet season, especially before the first harvest. Food is short, food prices high, work hard, and infections prevalent. Malnutrition, morbidity and mortality all rise; body weights decline. The poorer people, women and children are particularly vulnerable. Birth weights drop and neonatal mortality rises. Child care is inadequate. Desperate people get indebted. This is both the hungry season and the sick season. It is also the season of ratchets, of irreversible downward movements into poverty through the sale or mortgaging of assets, the time when poor people are most likely to become poorer.[9]

The wet season is also the unseen season. Rural visits by the urban-based have their own seasonality, as a little doggerel illustrates:

> Nutritionists, with careful plan,
> conduct their surveys when they can
> be sure the weather's fine and dry,
> the harvest in, food intake high.
>
> Then students seeking Ph.D's
> believe that everyone agrees
> that rains don't do for rural study –
> suits get wet and shoes get muddy.
>
> And bureaucrats, that urban type
> wait prudently till crops are ripe
> before they venture far afield
> to ask politely: "What's the yield?"

For monsoonal Asia, which has its major crop towards the end of the calendar year, it is also relevant that:

> The international experts' flights
> have other seasons; winter nights
> in London, Washington and Rome
> are what drive them, in flocks, from home

since they then descend on India and other countries in January and February at precisely the time of least poverty, and when celebrations and marriages are to be seen and heard.

There are of course some – agriculturalists and epidemiologists – who for professional reaons may make a point of rural travel during the rains; for that is when crops grow and bugs and bacteria breed. But the disincentives are strong. The rains are a bad time for rural travel because of the inconveniences or worse posed by floods, mud, broken bridges, getting stuck, damaging vehicles, losing time, and enduring discomfort. In some places roads are officially closed. In south Sudan there is a period of about 2 months after the onset of the rains when roads are impassable but when there is not yet enough water in the rivers for travel by boat. Many rural areas, especially and precisely those which are remote and poor, are quite simply inaccessible by vehicle during the rains. The worst times of year for the poorer people are thus those that are the least perceived by urban-based outsiders.

Once the rains are over such visitors can, however, travel more freely. It is in the dry season, when disease is diminishing, the harvest

in, food stocks adequate, body weights rising, ceremonies in full swing, and people at their least deprived, that there is most contact between urban-based professionals and the rural poor. Not just rural development tourism, but rural appraisal generally is susceptible to a dry-season bias.[10] The poorest people are most visible at precisely those times when they are least deprived; and least visible when things are at their worst.

### (e) *Biases of politeness and timidity*

Rural tourists, local-level officials and researchers may all be deterred by combinations of politeness and timidity from approaching, meeting and listening to and learning from the poorer people. Poverty in any country may be a subject of indifference or shame, something to be shut out, something polluting, something in the psychological sense, to be repressed. Those who make contact with it may offend those who are influential. The notables who generously offer hospitality to the visitor may not welcome searching questions about the poorer people. Senior officials visiting junior officials may not wish to examine or expose failures of programmes intended to benefit the poor. Politeness and prudence variously inhibit the awkward question, the walk into the poorer quarter of the village, the discussion with the working women, the interviews with harijans. Courtesy and cowardice combine to discourage contact with the poorest people.

### (f) *Professional biases*

Finally, professional training, values and interests present problems. Sometimes they focus attention on the less poor: agricultural extension staff trained to advise on cash crops or to prepare farm plans are drawn to the more 'progressive' farmers; historians, sociologists and administrators, especially when short of time, can best satisfy their interests and curiosity through informants among the better educated or less poor; those engaged in family welfare and family planning work find that bridgeheads for the adoption of new practices can most readily be established with better off, better educated families. But sometimes, in addition, professional training, values and interests do focus attention directly on the poor. This is especially so in the fields of nutrition and health, where those wishing to examine and work with pathological conditions will tend to be drawn to the poorer people.

More generally, specialization, for all its advantages, makes it difficult for observers to see the holism of poverty. As suggested earlier, rural poverty is a syndrome in which lack of assets, inadequate flows of food and income, physical weakness and sickness, vulnerability to contingencies, powerlessness and isolation interact and interlock. But professional training conditions otherwise intelligent people to look for and see much less. Professionals have been programmed by their education and experience to examine what shows up in a bright and slender beam which blinds them to what lies outside it. Knowing what they want to know, and short of time to find it out, professionals in rural areas become even more narrowly single-minded. To put it colloquially, they do their own thing and only their own thing. They look for and find what fits their paradigms. There is neither inclination nor time for the open-ended question or for other ways of perceiving people, events and things. 'He that seeketh, findeth.' Visiting the same village, a hydrologist enquires about the water table, a pedologist examines soil fertility, an agronomist investigates yields, an economist asks about wages and prices, a sociologist looks into patron–client relations, an administrator examines the tax collection record, a doctor investigates hygiene and health, a nutrionist studies villagers' diets, and a family planner tries to find out about attitudes to numbers of children. Some of these visiting professionals may be sensitive to the holism of poverty, but none among them is likely to be able to fit all the pieces together, or even to assemble most of the negative factors as they affect the poorer people. The professionals will not then be fully aware of the mutally reinforcing nature of the linkages of poverty. Perhaps because of this professional specialization, there are few general case studies of poor families available; where they do exist (e.g. Lewis, 1959; Ledesma, 1977) they provide valuable insights which a specialist might miss. Perhaps most seriously of all, specialization prevents outsiders from seeing the world from the point of view of the poorer people. It impedes the necessary reversal to learn from them and with them. Their priorities, freely identified and expressed, may occasion surprise. They may also fall in or between the domains of several disciplines. If professionalism is narrow, however, it encourages overspecialized and misleading diagnoses and prescriptions which underestimate poverty by recognizing and confronting only part of the problem.

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(g) *Review: the unseen and the unknown*

The argument must not be overstated. To most of these generalizations about biases, exceptions can be found. There are government programmes, voluntary organizations, and research projects that seek out those who are remote and poor. Some projects and programmes, such as those for the weaker sections and vulnerable classes in rural India, have an anti-poverty focus. Person biases can work the other way: women's groups and women's programmes attract attention; doctors are taken to those who are sick; nutritionists concentrate on the malnourished; agriculturalists and epidemiologists alike may have special professional reasons for travel during the rains; and, during an agricultural season, a daytime visit to a village may provide encounters with the sick, aged and very young, and not with the able-bodied who are out in the fields. Such exceptions must be noted. At the same time, there are two dangers of underestimating the force of the biases: first, a failure to see how they interlock; and second, a further underestimation of their incidence.

To address the first problem, the way in which spatial, project, person, dry-season, politeness/timidity and professional biases interact can be seen by analysing almost any example of an urban-based outsider investigating rural conditions. With many 'insights' and beliefs about rural life, the several biases can and do reinforce each other. The prosperity after the harvest of a male farmer on a project beside a main road close to a capital city may colour the perceptions of a succession of officials and dignitaries. The plight of a poor widow starving and sick in the wet season in a remote and inaccessible area may never in any way impinge on the consciousness of anyone outside her own community.

The second problem is that few may be immune to these biases. It may be supposed that those who originate from rural areas, or who have a home or second home there, will not suffer from them. Any such supposition might be misleading. The evidence available is too anecdotal and sketchy to be more than suggestive; but the suggestion is rather strong. Three examples can be cited.

In the first case, in a densely populated part of western Kenya, junior agricultural extension staff and home economics workers were each given a random sample of 100 households to survey. The households were in the area where they worked. After the survey, they all considered the sample had been biased heavily against the more progressive and better educated households. One of the agricultural staff complained that in his 100 households there was only one which had an exotic grade cow, and that there should have been several more if the sample had been representative. In reality, however, there was only one exotic grade cow for every 200 households in the area, so that the surveyor in fact had only a 50:50 chance of getting a grade cow at all. A home economics worker said that she was appalled at the poverty she had encountered among her sample. On two occasions she had burst into tears at what she had found. She had not known that there was such misery in the area. ("These people do not come to my meetings.") Now it is possible that this was an atypical case, although it is more likely, in my view, that the anti-poverty biases affect local-level staff as well as others, and that such staff generally underperceive deprivation in the areas where they work.

The second example is from Sri Lanka. After observing how the houses of the poor are physically hidden from the core of the village they studied, and how public officers appear not to see them very often, Moore and Wickremesinghe (forthcoming, p. 98) continue:

> Although most of the rural population . . . are poor and dependent in part or whole on wage labour, one hears comments of the nature: "Of course, most of the people around here have some job or little business in Colombo."

The implication is one of other incomes and modest well-being, which might be true of those who were better off, and with whom there was contact, but scarcely true of those who were poorer and with whom there was no contact.

In the third example, a senior official in a ministry in a capital city stated that in his rural home area no one ever went short of food. But a social anthropologist working in the area reported that during the annual hungry season, women were interviewed who said that they had not eaten for 3 days. There was food in the shops nearby.

Perhaps what we are considering here is a world-wide phenomenon, as marked in rich urban as in poor rural agricultural societies. Compared with others, the poor are unseen and unknown. Their deprivation may then be worse than is recognized by those in positions of power and influence.

Finally, we may note additional factors often missed by rural tourists, local-level staff, and even researchers. It is not just a case of the

invisible poorer people; it also involves other non-visible elements: international influences on rural deprivation; social relations (patron–client, indebtedness, webs of obligation and exploitation); and trends over time. The very act of being in a rural area and trying learn about it biases insight and interpretations towards what can be seen; and the observer's specialization then increases the likelihood of partial diagnoses, explanations and prescriptions. Poor people on disaster courses may not be recognized. A nutritionist may see malnutrition but not the seasonal indebtedness, the distress sales of land, and the local power structure which generate it. A doctor may see infant mortality but not the declining real wages which are driving some mothers to desperation, still less the real cause of those declining real wages. Visibility and specialization combine to direct attention in rural development to simple surface symptoms rather than deeper combinations of causes.

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## 4. REMEDIAL ACTION

What, then, can be done? To suggest remedial action implies the judgement that it is bad not to perceive the nature and extent of rural poverty. This assumption might be challenged on several grounds. It could be argued that it is not necessary to know more about the poor because of trickle-down mechanisms – 'everyone gains from growth'; because directing resources and attention to the poorer has a high opportunity cost – 'We can do more for less for the less poor'; because indigenous social institutions adequately take care of the deprived – 'The poor look after their own'; because of historical inevitability – 'Whatever will be, will be'; or because the effort is useless – 'We know it can't be done.' Each of these points could be debated at length. Perhaps it is enough here to note them, to disagree, and to recognize that they conflict with the philosophy and aims of most rural development, which has the stated purpose of reaching and helping those who are poorer. The World Bank has defined rural development as involving 'extending the benefits of development to the poorest among those who seek a livelihood in the rural areas' (World Bank, 1975, p. 3). It is difficult to envisage how initiatives in such rural development can be effective unless those responsible for policy, planning, implementation and evaluation have knowledge and understanding of those poorest people. It is in this spirit that the following suggestions for remedial action are made.

Remedies require changes in cognition and behaviour. This process involves not just learning in the sense of adding to what is known, but structural cognitive change. This in turn involves mental constructs and concepts, ways of seeing and understanding the world, and especially ways of seeing and understanding poverty. How cognitive and behavioural change interact, and how they can be manipulated, is a subject extensively treated in the psychological literature, much of it concerned with psychotherapy.[11] Three points can be noted. First, even those unsympathetic to behavioural approaches concede that the manipulation of rewards and sanctions can have a powerful influence on behaviour. Second, for changes in cognition and belief, group approaches appear to be more effective and more cost-effective than many others. Third, public statements of intention, attitude or belief made among peers have a rather strong tendency to influence subsequent behaviour and cognition. These points have been incorporated in some of the suggestions which follow.

### (a) *Tactics for tourists*

The earlier discussion of rural development tourism was negative, itself a bias. The point is not to attack or prevent it, but rather, accepting it as necessary, to improve it. Readers reflecting on their own experiences and techniques will have noted how often and how well they have avoided or broken away from the tendencies described; and how often, willingly or not, they have been trapped by them. It is encouraging to remember the example of Ladejinsky. A man of wide experience, he carried out two brief field trips in India in 1969, at the age of 70, and wrote them up in the *Economic and Political Weekly* (Ladejinsky, 1969a, b). He visited the Punjab and Kosi area in Bihar. He had the skill and experience to see through, at that early date, to the ironies and ills of the Green Revolution: 'The new agricultural policy which has generated growth and prosperity is also the indirect cause of the widening of the gap between the rich and the poor' (1969a, p. 13). What others, years later, plodded to document to two decimal places, he detected convincingly in a week or two, exposing, decisively and without delay, the major trends and implications.

For lesser mortals, such achievements may be out of reach. But for rural visits concerned with poverty there are tactics which help. If these, once stated, are obvious to the point of banality, I can only say that it is remarkable

how often they are ignored, at least by myself. They are:

(i) *Offsetting the anti-poverty biases.* Urban, tarmac and roadside biases can be countered by going further afield and by walking away from roads; project bias by visiting not only projects but other areas near them, or by non-scheduled stops; biases of personal contact by deliberately seeking out the poorer people, by making a point of meeting women, by taking time to seek out those who are sick at home and not at the clinic, by asking about those who have left or who have died; dry-season bias by visiting during the rains, and timidity by breaking away from the courtesies and making it clear what is sought; professional biases by seeking, through introspection, to see the limitations imposed by professional conditioning, by trying to widen spans of perception, and by asking open-ended questions.

(ii) *Staying longer.* In many ways the poorer people are at the end of the line. They take the longest to reach; they are the last to speak; they are the least organized, the least articulate and the most fearful. They often keep a low profile. Some are migrants. In visits that are rushed, they are the people least likely to be encountered. It is after the courtesies, after the planned programme, after the tourist has ceased to be a novelty, that contact becomes easier. As we have seen, rural development tourism is vulnerable to a host of delays and disasters which reduce the time available. The serious 'poverty watcher', to use Moore's (1979) phrase, must allow plenty of time in one place. It helps to spend the night, to talk after dark, unhurriedly, and to eat together if it can be done unexploitatively.

(iii) *Being unimportant.* The cavalcade of cars, the clouds of dust, the reception committees and the protracted speeches of the VIP's visit generate well-known problems. By contrast, the visitor who comes simply, by bicycle or on foot, fits more easily and disturbs and distracts less. Unscheduled visits, walking and asking about things that are seen, planning not to have a special programme, and avoiding the impression of having influence over benefits which a community might receive, all reduce the dangers of special or misleading responses and impressions.

(iv) *Listening and learning.* If a tourist believes that there is nothing to learn from rural people, much is lost even before starting. A reversal of roles is needed with the outsider as pupil, listening and learning. Closed questions impose meanings; open-ended questions and discussions lead into areas which the visitor had previously not known of, and could not ask questions about. There is much to be discovered about what rural people know, but arrogance and consciousness of status all too often prevent it from being learnt.

### (b) *Rapid rural appraisal (RRA)*[12]

Rural appraisal by the urban-based professional is often inefficient. The trade-offs between the cost of information-gathering, and the quantity, accuracy, relevance, timeliness and actual use of information are badly managed. Appraisal is often either 'quick-and-dirty' or 'long-and-dirty', where 'dirty' means 'not cost-effective'. Uncritical rural tourism is often quick-and-dirty, with the biases noted. But, equally, the twin manifestations of long research, that is, extensive questionnaire surveys with dispersed investigators collecting mountains of 'data', and the prolonged total immersion of classical social anthropology, are both quite often long-and-dirty. The challenge is to search for more cost-effective 'fairly-quick-and-fairly-clean' techniques, using the principles of optimal ignorance and proportionate inaccuracy.[13]

Some of these techniques have been collated elsewhere (Chambers, 1980). Three are of particular relevance for an orientation towards poorer people. First, key integrating indicators may be used to assess poverty and to identify poorer people. They may be appropriate either for showing the relative poverty of an area or of a group, or within the area or group for identifying those who are poorer. Quality of housing is frequently referred to. Others include tangible assets (tools, beds, cooking utensils, clothing). Low birth weights of children also conflate several aspects of deprivation. Inventories or sales of soap have been suggested (Honadle, 1979) as indicators of changes over time in poverty or prosperity in an area. Indicators such as these, appropriately verified, may be used to avoid more detailed, expensive and long-drawn-out research. Second, key informants – social anthropologists, social workers, leaders of poor groups, university students doing field research – can help efficiently to implement shortcuts in long investigations. Third, combinations of group appraisal, with

teams of investigators changing partners and then discussing their findings each evening, may provide an especially efficient method for maintaining commitment and learning about the poorer rural people.[14]

The relevance of RRA lies in its capacity for releasing time from excessive data collection so that it can be used for more contact with, and learing about and from, those who are poorer. It may be a key to overcoming the endemic problems of shortage of time which shut the poorer people out. More time could be used to let them in. There are dangers of occurrences of the obverse of Parkinson's law – of time shrinking to fit work – but awareness of these dangers might reduce their incidence. Techniques of RRA, carefully developed and used, should have a part to play in improving awareness and understanding of rural poverty.

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### (c) *In-service research as training*

Unless there is a powerful countervailing ideology, in-service training is liable to reinforce elite preconceptions and stereotypes about poverty, insofar as poverty is considered a subject at all. The rather mixed and often disappointing experiences with public-sector training for management in developing countries (e.g. Stifel *et al.*, 1977) might lead one to premature pessimism. There may be more room for manoeuver, despite elitist biases, than is currently recognized. One set of possibilities is that of incorporating poverty-related research into sequences of in-service training. Three suggestions will now be made.

(i) *Surveys*

The use of surveys for generating systematic knowledge has obscured their value for training. Simple but systematic surveys can be a learning tool for those who carry them out. Random sample surveys, as in the example from western Kenya already cited, especially if followed up by discussion, may enable staff to form a more balanced view of an environment. Surveys with target populations of those who are most deprived could be used to correct imbalanced views in a more direct and pointed way. Well-designed techniques for exploratory and reconnaissance surveys can also provide new insights (e.g. Carruthers, 1979; Collinson, 1979; Hildebrand, 1979a). Familiarization for project staff might be achieved efficiently through quick surveys, perhaps focusing on key indicators and on a few in-depth case studies (Chambers, 1978). For correcting biases of perception and for learning about the condition and problems of the poorer people, surveys have much to recommend them.

(ii) *Poverty-focussed research*

In-service training might require participants to carry out more detailed and focussed research on poverty. Many suggestions can be made. An illustrative list comprises:

(a) Family case studies: a day in the life of a landless household, how a poor family survives the hungry season etc.
(b) Applications of the critical incident approach,[15] in which respondents mention significant incidents in their life and work, which are then discussed and explored. For poor families, attention might be directed towards contingencies and the previously-mentioned ratchets of impoverishment.
(c) Exploring practices, knowledge and attitudes relevant to programmes (health practices and beliefs, practices affecting fertility, agricultural activities etc.).
(d) Non-users and non-adopters: seeking out and trying to understand the problems and attitudes of those who do not use services and who do not adopt new practices.

For such research, good rapport is needed; and this may require village residence. This has been practised by the Peace Corps in some countries as part of induction, and could be much more widely used to include officials on in-service training.[16] The quality of insight gained might be very variable. Ideally, those taking part would be enabled to make a complete mental reversal, and to see the world, even if temporarily, the other way round, from the point of view of poor people, from the bottom up.[17]

(iii) *Groups, workshops and seminars*

Both surveys and poverty-focussed research may have a greater long-term impact on cognition and behaviour if they are part of a sequence of group activities. Before a survey or poverty-focussed research took place, public commitment could be sought from participants, and combined with a discussion of objectives, methods and problems anticipated. After the survey or research, subsequent workshops or seminars with reporting back, discussion and comparison of findings would serve to elicit and strengthen changes which participants were experiencing. A practical policy orientation, including group commitment to subsequent action, should also reinforce and build on the changes. Of particular importance might be not only a new understanding of why poor

people do not use services or adopt practices, but also subsequent programme changes taking those reasons into account.

### (d) *Games and role-playing*

Games and role-playing are underdeveloped approaches for understanding poverty. There are, however, examples where participants learn by playing the parts of poorer people. OXFAM has developed two games: the first is a Poultry Game which aims at understanding the difficulties of a farmer in a village in the developing world (and which has players as both farmers and labourers, with the labourers at a disadvantage: they do not have fenced runs). The second is a Poverty Game in which players group as villages, make seasonal crop decisions, are subject to contingencies determined by cards (as with the 'Chance' pile of cards in Monopoly), and are exposed to malnutrition and disease. Dowler and Elston (1979), building on the work of Chapman (1973, 1974), have devised a Green Revolution Game in which postgraduate students in human nutrition play farmers who make seasonal decisions concerning fertilizers, pesticides and longer-term investment, in conditions of uncertainty; outcomes are mediated by a small computer programme developed from Chapman's empirical data from Bihar.

Despite these examples, the potential of games for generating insight into the life, problems and attitude of poor rural people appears largely unrealized. The Green Revolution Game developed at the London School of Hygiene and Tropical Medicine appears to have been not only popular but also revealing to the participants: some players, for example, have become landless through bad luck or bad decisions and have had to survive by hiring out their labour to those with land; while others have benefited, again through luck or good judgement or both, from land concentration. One possibility is that participants in in-service training should create their own poverty games on the basis of information gained through their own research; and should then play them. It should be possible to build into such games aspects such as indebtedness, malnutrition, infant mortality, the non-use of services, and the like. On reflection, it is astonishing that such approaches to learning are not widely used – in public administration training, in universities, and in courses for the staff of aid agencies.

A further possibility is playing games with rural people themselves. In Ecuador, a simulation game called Hacienda has been developed and used as a complement to the 'consciencization' of campesinos (Smith, n.d.) and can hardly have failed also to educate those who devised and introduced it. Indigenous games can also provide points of entry to help outsiders learn from rural people (Barker, 1979). Games can be used to elicit the mental constructs of different groups of people and the ways in which they construe elements of their environment. In Sierra Leone, Richards (1979) has used a technique based on Kelly's personal construct theory. This is the triads test,[18] in which respondents are presented with elements (often objects) in groups of three and asked to pair two on the basis of similarity and separate the third on the basis of difference. Repeated for different groups of three from a population of elements, this elicits respondents' constructs, and reveals how different people view the same objects. In Sierra Leone, weeds were presented to university botany and geography students, to farmers and to agricultural extension trainees. The constructs of the university students reflected a preoccupation with morphology and Linnean taxonomy. Those of the farmers brought out difficulties of clearing and secondary medical uses. The surprise came with the extension trainees. Richards reports that they:

> . . . produced grids almost identical to those of the university students with constructs such as root/non-root; round leaf/multiple leaf; hair on stem/no hair on stem; hairs on leaf/no hairs on leaf predominating. This proved to be of significant 'diagnostic' value, leading to a spontaneous 'seminar' by the trainees on how they would communicate with farmers if their 'scientific' approach to farming made them think in text-book botanical terms rather than in terms of farming utilities. Tentative action proposals for syllabus development and for studying alongside the farmers were beginning to emerge at the end of the peroid. (1979, p. 32.)

There may be other approaches from psychotherapy which could also be used to enable those working on rural development quickly and effectively to understand the construct systems of rural people.

A final suggestion is that of simulations with role-playing. One variant is theatre, dramatizing common events or crises for poor people. Another is for role reversals, for people who are powerful to play the parts of those who are weak. Dramatizing events such as encounters between officials and poorer rural people may enable spectators to 'look in on' and see in a new way, from the other party's point of view, situations which are a commonplace of their work.

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(e) *Reversals: learning from and working with*

Running through many of the previous suggestions is the theme of reversal: reversing the positions and insights of urban against rural, educated against non-educated, rich against poor, and powerful against weak. Perhaps the most significant reversal is in the roles of teacher and pupil, with rural people acting as teachers and outsiders as pupils. This reversal conflicts with the assumptions and conditioning of modern education and professional training which imparts the prejudice that modern scientific knowledge is not only superior to indigenous technical knowledge (ITK), but also invests superior status and authority on those who are its bearers. In the words of the Bible (Ecclesiastes, 9:16) 'the poor man's wisdom is despised, and his words are not heard'. Yet there has been repeated evidence of the validity of ITK, as in the case of intercropping where indigenous technology has proved superior to that of agricultural scientists (Belshaw, 1979). A first step is to recognize that rural people often have much detailed knowledge, their own conceptual categories, and their own systems of meaning, and that there is often much to learn both about and from these. Indeed, it is ironical that in many environments the most easily acquired knowledge that would be new to the modern scientific network is that which those who have been educated are least likely to recognise, acquire or write up: the knowledge of rural people themselves.

The case must not be overstated: ITK is superior in some respects and some fields, and modern scientific knowledge in others [see Richards (1979) for an analysis]. But ITK is not known to the outsider until an attempt is made to find it out, and that attempt is often not made.

'Learning from' can sometimes be made most effective by 'working with'. This process can be best illustrated by an example from agriculture. Recognition of the rationality of the behaviour of small farmers (earlier thought to be primitive, conservative and backward), acceptance by agricultural scientists of small farmers as professionals and colleagues, and collaborative experimental work on farmers' fields with farmers, are all notions that are spreading. A further step, taken by a few, has been to work at farm tasks with farmers in their fields. Richards (1979) has remarked on the value of this practice as a learning process. In Peru, Hatch undertook it systematically through the many operations of maize cultivation, hiring himself out to farmers as an unpaid labourer on the condition that they would teach him the task to be performed:

> The scheme worked beautifully. Most small farmers took to their role as teacher very conscientiously. Rather than waiting to respond to my questions, they often volunteered task information I would never have known enough to inquire about. In fact, most of the information I gathered was gained in this way. Hired labourers often proved excellent instructors as well. (Hatch, 1976, p. 16.)

Hatch found, among other things, that crop labour requirements might be half as much again as those estimated by outsiders (Hatch, 1976, p. 11).

'Learning from and working with' is a procedure that may have more potential in agriculture than in, say, health and nutrition, although this is a matter for investigation. But in all cases, unless present rural practices, beliefs and attitudes are sympathetically understood by outsiders, interventions are liable to be misguided. With rural people generally, and with the poorer people in particular, outsiders have to put themselves in the position of humble learners before they can establish how much they have to learn. It may often be more than they expect. Moreover, it is from the poorer people that they will expect to learn least, although it is the poorer people who are the best authorities on themselves.

(f) *Rewards: prestige and promotion*

All these suggestions go against the grain. The inherent tendencies of the biases of knowledge and contact, of cores and peripheries, exercise gravitational pulls away from the poorer rural people. Why should those in positions of influence, at whatever level, behave differently? It would be unrealistic to answer that exposure to poverty is likely to be sufficient. The capacity for having eyes that see but minds that contrive to distort, repress and rationalize is unhappily one of the greatest human wonders. A major element of any change in cognition and behaviour must probably lie in rewards and incentives. The problems here are daunting. For a few outstanding individuals there are motives of idealism which lead them to work with and for the poorer people. But while such work is regarded as of little professional interest, of low prestige, dirty, polluting, demeaning, disturbing and unrewarding, only a small minority will take that path. The system of rewards, prestige and promotion has to change if the majority of those concerned with rural development are themselves to change.

There are no panaceas, but suggestions can nevertheless be made. Together, their combined effects should be greater than the sum of their separate impacts:

(i) Changes in professional values in the citadels of professionalism. This suggestion refers to professional associations based in rich countries, to the editorial policies of high-status international journals, to the textbooks and curricula of universities, to the research priorities of academics, and to the types of research and writing which are valued. Conversion of such cores of knowledge in the rich countries, is a crucial, but underrecognized, part of this process.

(ii) Leadership and rhetoric. Leadership, when politicians and senior officials show by example that they attach priority to the poorer people, has some effect. The language and rhetoric of development also have an influence; at least, if they are poverty-oriented, they legitimize the work of those who wish to help the poorer people; more optimistically, they can provide preconditions for shifting programmes and bureaucracies towards the poorer.

(iii) Prestige accorded at the international, national and subnational levels to those who do good work with and for the poor. Nobel Prizes, like that awarded to Mother Teresa, are at one extreme; at the other, recognition can take many forms. And where they do not exist they might be created. Some of those who have innovated with primary health care might be candidates for awards. Invitations to conferences are another form of encouragement, already practised, but which might be extended and directed at more of those individuals whose good work has gone unrecognized.

(iv) Career requirements for civil servants to spend some of their time either in remote poor areas or with special responsibilities for poverty programmes or for poverty-oriented training. This requirement might be used to overcome the widespread practice of the 'penal' posting to a poor rural area of an official who for one reason or another is out of favour.

(v) Initiating village-level projects (as with antyodya in Rajasthan) which identify the poorest households and have programmes specifically tailored to their needs; and which then are the object of attention of supervisors and visitors.

(vi) Valuing new types of research and writing. This practice is already happening, but only slowly. Far too little is still known, and less written, at the level of personal or family detail, about the lives and problems of poorer rural people. Family case studies are still quite rare. New styles and priorities in rural research, especially perhaps by university students during their vacations, might set new patterns. Further, ITK presents major opportunities for additions to published knowledge.

(vii) Strengthening the poverty-orientation of monitoring and evaluation procedures so that those working on programmes and projects increasingly feel that their work will be judged by its impact on poorer people. This would include awareness, during monitoring and evaluation, of those who migrate or die, and those who do not take up services or otherwise benefit (Chambers, 1978).

(viii) Promotions. This is both critical and difficult. There are those, but they are a small minority, who will devote themselves to work with and for the poorer people, without regard to personal advancement or financial benefit. For the great majority, the status and financial incentives of promotion weigh heavily. The problem, then, is how to ensure that effective poverty-oriented work is rewarded by promotion. Solutions may have to differ according to political and administrative systems, and may never be easy. But it should not be thought that there is little scope for improvement here. Attempted in isolation, a policy of promotion for good work with and for the poor may seem improbable. Supported by other initiatives and changes in values, promotion might be a strong tool for changing personal priorities and behaviour.

## 5. CONCLUSION

The difficulties of development for and with the poorer rural people of the developing world are immense. No purpose is served by underestimating them. Many biases tilt against them. The enormity of the problems may induce some to despair, cynicism, fatalism and a search for one big solution. But great problems can be broken down into small parts which can then be tackled one by one. In suggesting that some of these parts are cognitive and behavioural, there is no intention to present a panacea. Cognitive and behavioural change on the part of

those who are influential – political leaders, senior and junior officials, persons from aid agencies, and others involved in policy and implementation – cannot be expected to come easily. But at least there is room for manoeuver. Just how much room there is will become clearer when more experience has been gained. In the meantime, measures to change and reverse thinking and behaviour appear well worth exploring as one set of thrusts, perhaps a key one, for reducing rural poverty.

## NOTES

1. See the detailed discussion of urban, tarmac and roadside spatial biases in the next section.

2. This estimate may seem high. But if just district headquarters are considered (let alone capital cities, provincial or regional headquarters, subdistrict headquarters, and other towns, and without even including China) 80 countries with an average of 30 districts require only a little over 4 visits a day to make a daily total of 10,000 occurrences.

3. A 1-day Workshop on Rural Development Tourism was, however, held at the Institute of Development Studies, University of Sussex, on 10 March 1977. In writing this paper, I acknowledge a debt to the discussions of that workshop.

4. An early example is provided by Zambia's fuel shortage which led to fuel rationing following Rhodesia's unilateral declaration of independence in 1965: one effect was that the universities of Nottingham and Zambia joint research project concerned with the productivity of agricultural labour was restricted to work in two areas instead of three, and these were areas which were relatively well-developed agriculturally, having had large inputs of education, extension and communication (Elliott, 1970, p. 648).

5. Or in one case close to the famous tourist site for the VIP. As Galbraith has remarked of India, although hopes and enthusiasm for community development waned, 'A number of show villages continued to impress the more susceptible foreign visitors.' He records this incident: 'In the spring of 1961, Lyndon Johnson, then vice president, was taken to see one of these villages in the neighbourhood of Agra. It was, of the several hundred thousand villages of India, the same one that Dwight D. Eisenhower had been shown a year or two before. It was impressive in its cleanliness, simple cultural life, handicrafts, and evidence of progressive agricultural techniques. Johnson, an old hand in problems of agricultural uplift and difficult to deceive, demanded to see the adjacent village a mile or two away. After strong protesting words about its lack of preparation to receive him, he was taken there. This village, one judged, had undergone no major, technical, cultural, or hygienic change in the previous thousand years.' (Galbraith, 1979, pp. 106–107.)

6. *Mea culpa.* In the 1960s so many students and other researchers were attracted to work on the (well-documented, well-organised and well-known) Mwea Irrigation Settlement in Kenya that farmers complained of interview saturation.

7. In February 1979, two British Members of Parliament visited the Anand Co-operatives in India. They saw and were impressed by the delivery of milk from small producers to one centre. Inside hung a photograph of James Callaghan, the British Prime Minister, taken during his visit to the same centre. Asked if they would like to see a second centre they readily assented. Once inside they found another photograph, this time of the visit to that centre of Judith Hart, the British Minister of Overseas Development.

8. This is intended as a statement of fact, not a judgement. There is something of the Greek tragedy in the way some conspicuous projects are driven down this path which leads, progressively, to self-deception, hubris, defensiveness and, ultimately, debunking of the legend.

9. For the statements in this paragraph, see the papers of the Conference on Seasonal Dimensions to Rural Poverty summarized in Chambers *et al.* (1979), and also examined in Longhurst and Payne (1979) and Chambers (1979b).

10. A manual for assessing rural needs, warning about the unexpected in rural surveys, states: 'Once, the jeeps needed for transporting the interviewers were recalled for a month *during the few precious months of the dry season.*' (Ashe, 1979, p. 26, emphasis added.) A major Indian institute concerned with rural development concentrates its field research outside the period of the main monsoon.

11. By way of entry into some of the literature, see Feldman (1966); Mahoney (1974); and Kanfer and Goldstein (1975). There is a rich range of techniques in both humanistic and behavioural psychology. Techniques in behavioural psychology are now often described as behaviour modification, and rely on the manipulation of rewards and sanctions. While raising ethical questions, behaviour modification makes claims to be rapidly effective for some purposes (Bootzin, 1975; Azrin and Foxx, 1977). More generally, the range of techniques for achieving change can be illustrated by the 13 chapter headings in *Helping People Change* [Kanfer and Goldstein (eds.), 1975]. The techniques are: relationship enhancement; attitude modification; cognitive change; model simulation and role-playing; operant; fear reduction, aversion; self-management; self instructional; expectation; hypnosis and suggestion; group; and automation. I make no pretence to have reviewed this literature. But it is worth pointing out that it exists and that it may contain usable ideas.

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12. For a review of a workshop on RRA held on 26–27 October 1978, see Barnett (1979). Many of the papers of a subsequent conference on RRA held on 4–7 December are listed in the references in Chambers (1980).

13. The principle of proportionate inaccuracy is that costs should not be incurred to achieve greater accuracy than can be used.

14. See papers by Hildebrand (1978, 1979a, b) for pioneering applications in appraisal for agricultural research.

15. See Montgomery *et al.* (1975) for an application of this approach to defining training needs for the management of development projects. With rural poverty, it could be used comparatively and inductively to identify anti-poverty measures and their relative priorities.

16. Objections to village residence can be expected. A senior UN official to whom this was suggested said that the health risks to his staff would be unacceptable.

17. For a social anthropological example of this sort of reversal, see Mencher (1975).

18. For further techniques see Fransella and Bannister (1977).

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# The Generation of Technologies in Rural Areas

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**Summary.** – Technologies are at present generated in the framework of a system of paradigms which originated in the developed world, which is not adequate for the developing countries. This article proposes a research methodology that, while generating technologies appropriate for rural areas, contributes at the same time to the building of a new system of paradigms adequate for the needs and conditions of developing societies. The final aim of the methodology, which presupposes local participation, is to define a 'technological space' which is the set of requirements and constraints that the technology has to satisfy. Any technology which fits that space is appropriate, whether locally produced or imported.

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## 1. THE CONCEPT OF APPROPRIATE TECHNOLOGY

The realization that the indiscriminate transfer of technology from the industrialized countries is not an adequate solution for the developing countries is not new: it is contained in Gandhi's *Sarovaya* approach to development as early as 1909. This concept was based on the development of the villages, with the means of production for basic needs owned by families or by co-operatives of families. The basis of the fight against poverty was full employment. 'For the full moral and mental development of the individual – for the individual was, for Gandhi, the supreme consideration – it was essential to find work that gave him opportunity for self expression and development of creative intelligence . . .'[1] Education – based on work by hand and on the identification and solution of problems of immediate relevance – was the tool to develop creative intelligence. In short, self-reliance starting at the village level, concentration on the immediate relevant problems rather than on long-term fixed plans, fostering of creative intelligence through the full development of the individual, and social change through non-violent civil disobedience and non-co-operation, were the central elements of his approach to development.

Gandhi's concept of development included an explicit science and technology policy that was essential for its implementation. In his own words: 'if I can convert the country to my point of view, the social order of the future will . . . include everything that promotes the well-being of the villagers. I do visualize electricity, ship building, ironworks, machine making and the like existing side by side with village handicrafts. But the order of dependency will be reversed. Hitherto, the industrialization has been so planned as to destroy the villages and the village crafts. *In the state of the future it will subserve the village and their crafts.*'[2] Gandhi's insistence on the protection of village crafts did not mean a static conservation of traditional technologies. On the contrary, it implied the *upgrading* of the local techniques, the *adaptation* of modern technology to India's conditions and environment, and the encouragement of scientific and technological research to identify and solve immediate relevant problems. His final aim was the transformation of the Indian society, but through a process of organic growth from inside and not through an imposition from outside.

In Gandhi's social doctrine, the concept of *appropriate technology* is clearly defined, although he never used that term. Moreover – and we will come back to this point later on – he defined appropriate technology in the context of an integrated approach to socio-economic and cultural development.

Under Nehru's rule, the development strategy of India was based on planned large-scale industrialization with emphasis on basic and heavy industry, and Gandhi's ideas on technology were almost completely forgotten until the early 1960s. At that time, and in a different context, they emerged again; the best known names for this new concept of technology – *intermediate* and *appropriate* – made their appearance at

that time. The first one was proposed by Schumacher in the mid-1960s. It refers to a technology that requires less capital investment for work place than the ones currently in use. It should be small-scale, decentralized, with rural relevance, based on local resources, and of simple operation and maintenance. *Appropriate technology* was used by Indian planners in the early 1960s with a meaning, in practice, very similar to the one attached by Schumacher to intermediate technology.

From this rather modest beginning, and above all in the wake of the new-born concern for the environment, the terminology associated with the 'new technology: has greatly multiplied, sometimes adding confusion more than clarification to the underlying concepts. In a meeting organized by UNEP, the following terms in use were listed:[3] intermediate technology; appropriate technology; self-help technology; progressive technology; biotechnics; ecologically-based technology; soft technology; alternative technology; resource-conserving technology; new alchemy; low waste and no waste technology; environmentally sound technology; liberatory technology; people's technology; convivial technology; radical technology; community technology; soft technology II; alternative technology II; utopian technology; white technology; careful technology; humane technology; equilibrium technology; alternative technology III; inequality reduction technology; appropriate technology II; rational technology; alternative technology IV.

According to the same report 'unfortunately, some of the terms have never been clearly defined; and others may have been defined in one way, but used in another and understood yet in another way'.[4]

The literature on the subject has also expanded to such an extent that even a brief review of its content would be a major undertaking. Part of that literature refers to the conceptual approach, another part to specific applications, and a considerable portion finally adds very little to the clarification of the issues involved.

## 2. ACTIVITIES IN THE FIELD OF APPROPRIATE TECHNOLOGIES

Together with the terminology and the literature on the subject, the number of organizations engaged in appropriate technology activities has steadily increased in recent years. Several international and national institutions have prepared lists of such organizations, with a very brief description of their activities, in most cases reduced to the mention of the specific fields of research in which they are engaged.[5] The number of organizations included varied greatly in the different directories. For example ILO gives 22, the Canadian Hunger Foundation 81, and the UNEP, the most inclusive, gives 696, of which 443 are located in the developed countries, and 253 in the Thirld World.

Despite the impressive number of organizations registered, these lists and descriptions are not enough to give a clear idea of the real activity in the field of appropriate technology, mainly because most organizations are included only on the basis of an explicit declaration of interest in appropriate technologies. A good example of the heterogeneity of the lists is given by the UNEP directory which includes examples ranging from 'organizations which have some amount of experience and expertise in their staff, whose names appear repeatedly on lists as referrals, and which engage in research' to 'organizations for which only an address and an occasional attribute has been supplied, activities and publications are unknown'.

Despite the scarcity of accurate available information, it is evident that a substantial effort is being devoted to the generation and diffusion of appropriate technologies. However, the success of those activities up to now has been very limited – with the significant exception of China – as can be seen with a cursory examination of the literature on the subject.[6]

The technologies of some importance that have been produced are few, the dissemination poor, and in many cases they have been rejected by their supposed beneficiaries, above all in the rural areas. In short, appropriate technologies have been unable to stem, in any significant measure, the influx of western current technology in the countries of the Third World.

Many explanations have been offered for this situation: from scarcity of financing, trained personnel and equipment, to lack of adequate socio-economic studies.[7] Although it is obvious that the shortcomings of the R and D systems of most developing countries constitute a great handicap in the development of technologies, they can partially explain the insufficient activity in the field, but not why so many supposedly appropriate technologies fail to reach the intended beneficiaries or are not accepted by them. In our view there are two causes of the poor performance of the R and D systems of the Third-World countries that have not been taken sufficiently into account. The first relates to the relationship between technologies and style of development, and the second to the

very process of generation of the technologies. In what follows, we will refer first briefly to the connection between technology and development, but most of the rest of this article will be devoted to its central theme: the methodology to generate appropriate technologies.

## 3. APPROPRIATE TECHNOLOGIES AND DEVELOPMENT

From the point of view of their acceptance, the main difference between 'modern' and appropriate technologies is that the former represents a *whole set of coherent technologies*, while the latter, up to now, is only a miscellaneous assortment of technical solutions. The explanation is that western technology *embodies an integrated concept of development*, while the existing appropriate technologies reflect a piecemeal approach without an adequate socio-economic context to give them the required coherence.

The problem we are confronted with here is the basic ambiguity of the term *appropriate technology*. All technologies are appropriate: the question is *what for*? If the objective of the Third-World societies is to imitate the style of development of the advanced countries, the western technologies are appropriate for them. The fact that the massive introduction of those technologies causes undesirable social and cultual effects is beside the point: it is the price accepted by the ruling classes to preserve a given socio-economic order.

It is obvious, therefore, that the very possibility of generating an alternative body of technologies to the current ones depends essentially on the capacity to conceive and implement a new approach to development. In other words, the term appropriate technology has no meaning unless located in the frame of reference of a clearly defined type of society. It is in this context that the original Gandhian concept of appropriate technology contrasts with the one that emerged in the 1960s, basically in the western countries. The former, as we already said, was immersed in a very concrete scheme of development, with all its social, economic and cultural dimensions unambiguously defined. The latter is based on a more or less vague concept of a 'better and more humane society' – deeply concerned with the rational use of the natural resources and the preservation of the environment – that evades most of the socio-economic and political hard facts implied in a change that would affect, directly or indirectly, most fields of human activity.

In the developing countries, however, a new concept of development is being constructed that can constitute the frame of reference of the new technology. Its distinctive element is that it is centred in concrete human beings; the well-being of individuals will not be the by-product of indiscriminate economic growth, but a specific target whose attainment will condition the whole social and economic organization of the country.

According to this approach, development will be centred around the concept of 'basic needs.' There are many definitions of this concept, but it is essentially the recognition that each human being has an inalienable right to the satisfaction of certain needs which are essential for a complete active incorporation into his culture. Some of these needs – such as food, shelter, health and education – are relatively invariant through time and cultures, and easy to identify. Others however, associated with consumption, or of a more spiritual nature, are more difficult to define. New needs are generated by the evolution of cultures, by new forms of social organization, and by technological change. In judging which of those needs are really 'basic', and their relative priority, a large dose of subjectivity, or social bias, is inevitable. The only way out of this dilemma is to establish mechanisms of participation to ensure that all social decisions really represent the will and aspirations of the populace.

The elements we have identified – not to repeat the path of the developed countries, to make the satisfaction of the needs of the people the specific objective of development, and to ensure as much popular participation as possible – are not enough to give a complete picture of the content and meaning of the new approach to development. History shows, however, that this is not an exception. All social changes in the past have started with a nucleus of very simple and basic objectives; the extent to which those objectives are attained, and the operative forms they take, are determined essentially by the characteristics of the process of change itself. In other words, and this is not new, the ends are largely a function of the means.

In the new vision of development, the mechanism of change is centred around the concept of 'self-reliance.'

In its essence, self-reliance is basically the recognition that the main responsibility for solving the problems of underdevelopment lies with the developing countries themselves. It is also the awareness that development, progress or evolution – whatever we choose to call it – is not simply a techno-economic phenomenon:

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it is also, and mainly, a process through which a society continuously creates and reasserts its own identity.

Finally, it is obvious that the new development cannot be implemented with the capitalist structures prevalent in most developing countries, based on private benefit, and on the exploitation of the majority of the population. It would require a radical socio-economic transformation, but its exact characteristics will vary widely, given the social, economic and cultural diversity of the Third World. For the countries that have already transformed their structure the starting conditions will be more favourable, but it should not be forgotten that some of the elements that have lead to the present world crisis – such as material consumption as the main social goal, lack of popular participation, alienation – are, in varying degrees, shared by both the capitalist and the socialist systems, as they exist today.

## 4. METHODOLOGY FOR THE GENERATION OF APPROPRIATE[8] TECHNOLOGIES

### (a) *How technologies are generated at present*

The framework given by an integrated development scheme is the necessary but not sufficient condition to generate appropriate technologies; it also requires an adequate methodology of research. Before discussing this last point, we will analyse briefly how technologies are generated at present by the R and D systems, starting with the developed world.

The determination of the adequacy of a technology for a given society is a problem with many variables, only a few of them being strictly technological. Most of these belong to the fields of economics, sociology and social psychology, and form what might be called a set of assumptions or paradigms, which constitute the frame of reference of the R and D system. Some of them for the advanced countries can be stated as follows: the scarce factor of production is labour, so the more capital-intensive technology is the better; it is necessary to stimulate consumption by producing as many varieties of goods to satisfy the same needs as possible; the dynamics of the economy depend to a great measure upon a rapid circulation of goods, so a relatively fast rate of obsolescence is desirable; a considerable part of the population has its basic needs more than fulfilled, so its consumption can only be stimulated by the production of more and more sophisticated goods, irrespective of their real social value; it is a highly competitive economy in which innovations are essential to survival, and they have to be stimulated even when they waste resources, in the sense that they result in the production of more complex and expensive goods that add nothing, or very little, to the rational satisfaction of the needs to which they are directed; natural resources or their substitutes, with a very few exceptions, are available in unlimited amounts.

These are only a few examples of the set of assumptions that direct the effort of the R and D systems of the developed countries of the capitalist world. They have mostly evolved since the beginning of the Industrial Revolution and are the expression of the most basic characteristics of those societies; they are seldom explicitly stated as they have become assimilated by every member of the R and D systems. This is the reason why any scientist or technologist of the developed world, whatever his personal social position or political ideology, when faced with a technological problem rejects automatically, almost unconsciously, any solution which does not conform with the accepted assumptions.

In the developing countries the process of generation or introduction of technologies is more complex. We will base our analysis on the following assumptions:

(a) Most developing countries are dual societies, composed of a modern and a traditional sector. The modern, or more appropriately, the rich sector comprises between about 10 and 30% of the population, has an average income *per capita* several times higher than the traditional sector, and has the cultural habits and patterns of consumption of the middle and upper classes of the advanced countries. The traditional sector lives mostly on a subsistence economy and its cultural patterns are still greatly based on those prevailing in the past. In the last decades mass media communications have started to change its cultural habits, without much improving its material situation. According to many social scientists, particularly those from Latin America,[9] the relationship of the traditional sector with the modern one is one of dependency which closely resembles the relationship between developed and developing countries. The traditional sector produces the raw materials that are exported or required as inputs by the modern sector. Most of the benefits of international trade are invested in the modern sector which,

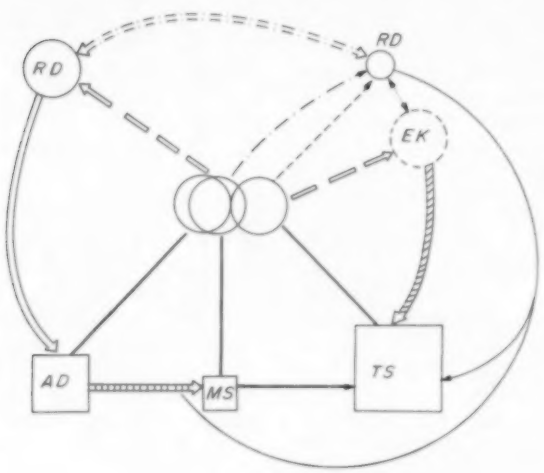


Figure 1.

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added to the great wage difference between urban and rural areas, tends to continuously widen the economic gap between the two sectors.

(b) We will consider technology broadly divided into two types: modern or scientific technology, and traditional technology based on empirical knowledge. This distinction is important because about half of humanity and a great majority of the population of underdeveloped countries uses traditional technologies to solve most of the problems of the subsistence economy in which they live. It is obvious that this sharp division between traditional and scientific technologies is somewhat artificial. In modern societies there are technologies in use which include some elements of empirical knowledge. Conversely, in the traditional sector of society there is some penetration of scientific technologies. For the purpose of our analysis, however, these exceptions do not alter the overall picture. For the study of the behaviour of the R and D systems, we define as the problem area of a society the set of problems that can be solved by the application of technologies, either scientific or empirical.

Figure 1 is a very simplified representation of the mechanism for generation of technologies as they work today, and its relationships with society. It refers to the whole world, but can be applied with a few modifications to any particular underdeveloped country.

The boxes at the bottom of the diagram represent the sectors in which we have divided world society; advanced countries (*AD*); and modern (*MS*) and traditional sectors (*TS*) of the underdeveloped countries. The sizes of the boxes are approximately proportional to the size of the population included in each of these categories. The circles at the centre are dimensionless and depict the relationship between the problem areas of the three sectors: the amount of overlap reflects, in general terms, how much they have in common. The circles at the upper part of the diagram represent the sources of technological solutions: the R and D systems (*RD*) of the developed and developing countries, and empirical knowledge (*EK*). The sizes of the *RD* circles express their relative importance – although not in exact quantitative terms – as reflected by investment, personnel etc. The broken arrows indicate the demand upon the sources of technology. The full arrows depict the 'flux' of technological solutions; their width represents the relative importance of the directions of circulation. Finally, the dash and point lines reflect the interconnections between the sources of technology.

The diagram can be clearly divided into two parts: the left-hand side represents the relationships from the point of view of circulation of technology between the advanced countries and the modern sectors of the developing countries; the right-hand side depicts the situation of the traditional sector of the underdeveloped countries. We will first analyse the left-hand side of the diagram.

Most of the features shown in this part of the diagram are well known, so we will consider only those which are more relevant to our purpose. The characteristic that determines the overall pattern of the flux of technology is the overlap of the problem areas of the two sectors

under consideration. The rich sector of the underdeveloped countries, having the same cultural trends and values of the developed countries, has the same patterns of consumption and, hence, exerts a similar type of demand on the productive and R and D systems.

As about 98% of the R and D capacity of the world is concentrated in the developed countries, it is obvious that the overwhelming majority of the technological solutions for the area of common problems was to come from the R and D systems of those countries. Moreover, the overlapping of technological problems is continuously enhanced by a feedback mechanism created by the way in which technology circulates in the whole system.

This mechanism is based on the fact, sometimes overlooked in the representations of the R and D systems, that the productive structure of the developing countries is not directly connected with the technological systems of the advanced countries. Of the many technical solutions explored by the R and D systems of these countries, only those that are accepted by their internal markets are finally introduced in the developing countries. In other words, the society of the industrialized world operates as a 'filter' through which the production of their R and D system has to pass before reaching the developing countries. The result – as the advanced countries move towards a welfare society based on the consumption of increasingly sophisticated goods – is that the R and D system of the developing countries is confronted with a technology that changes so rapidly that it makes it very difficult for them to be up-to-date with information and practically impossible to influence its direction.

Another effect of this mechanism of circulation of technology is that the industrial systems of the developing countries tend to concentrate on the production of increasingly expensive and sophisticated goods, thus diverting human and material resources from the backward parts of society.

The overall result of this mechanism of generation of technology is to accentuate the dual character of the developing countries. The modern sector tends to be more and more integrated with the advanced countries – at least from the point of view of cultural habits and patterns of consumption – widening the gap with the traditional sector, even if the latter has some marginal improvement in its living conditions.

All the characteristics of the traditional sector in relation to technology stem from the basic fact that its problem area, as we have defined it, has very little in common with that of the modern sector. The most relevant features of the traditional sector are too well known to require detailed description: it still greatly depends on a subsistence economy – despite the fact that it is the producer of the raw materials on which the growth of the rich sector is based – and is therefore subordinated to the market integrated by the modern sector. Most important of all, it lives for the most part in a state of utter material misery. Its central problem, therefore, is to satisfy the very basic needs of everyday life.

The technologies used by the traditional sector are based on empirical knowledge, which is transmitted by verbal tradition and is the result of centuries of struggle for survival. This knowledge is comprised of a great amount of useful information on the physical environment and on the ways to use it to provide for the essential needs of life.

As we have already seen, the connection of the traditional sector with the sources of modern technology is very weak. The technological solutions produced or adopted by the modern sector of the economy are generally not suited to the particular conditions of the traditional sector and, besides, this sector lacks the economic capacity to accede to them.

The relationships between the three sources of technology also reflect the overall situation. The R and D systems of the developing countries are strongly interrelated with the R and D systems of the advanced countries – mainly through basic research – and make their contribution, however small it might be, to the generation of the scientific knowledge that constitutes the basis of modern technology. On the other hand, the body of empirical knowledge of the traditional sector has practically no connection with the R and D systems of the modern parts of society. It is not considered, in general, an object of scientific enquiry.

By comparing how both parts of the world generate technology, it is easy to understand why the developing countries have not been able to solve – even in those fields where the political will does exist – the most pressing problems of their societies. In the developing countries the R and D systems have evolved with the modern sector of the economy, and are closely connected to the R and D systems of the advanced countries. *Their paradigmatic determinants are very similar to those of the developed societies, and this similarity is continuously enhanced by the process just described.*

In the traditional sector, on the other hand, the problem area is different from that of the

modern sector, and consequently the assumptions of the R and D system cannot be applied to the solution of its problem. It is an essentially non-explored area and there is no set of paradigms which could form the basic framework to direct the efforts of the R and D systems. Without that frame of reference, hunger or illiteracy, for instance, are not problems from a scientific point of view; they are only facts. *They become scientific or technological problems only when their social, economic and psychosocial parameters and variables are unambiguously defined.* The consequence, which is widely known, is that the traditional sector exerts very little explicit demand on the R and D system of the underdeveloped countries.

This statement does not contradict the fact that the R and D system performs some research on the problems of the traditional sector that results in the introduction of a few modern technologies. The important point, however, is that in most cases the research is made on the implicit assumption that the criteria applied to the modern sector are also valid for the traditional sector. This necessarily results in a piecemeal approach that induces the introduction of some 'modern' technologies, without taking into account the overall social effects.

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### (b) *The stages of the methodology*

It is clear from the above that the main problem of the R and D system of developing countries is the lack of an endogenously generated set of assumptions or paradigms that can serve as the basic framework to develop technologies appropriate to their own needs and aspirations. It is also obvious that those countries cannot build such a framework through the same long process that acted in the past in the now industrialized societies.

In recent years, and in relation to that problem, there has appeared an abundant literature on 'recipes' for the type of technologies the developing countries should generate. It is universally said – to give just one example – that those technologies should be labour-intensive. It is true that in a country with structural underemployment the overall technological development should increase employment, but this does not mean that *all technologies* should be labour-intensive.

In our view, the specific type of technology a country or a region should adopt cannot be determined by *a priori* prescriptions; *it should emerge from the very process of generating it*. Consequently, the only solution for the developing countries is to devise a methodology of research that, while generating the required technologies, contributes at the same time to building up the systems of assumption which we have referred to previously.

In what follows we present a general outline of a methodology to generate appropriate technologies for rural areas. The reasons why we have selected the rural areas are the following:

(a) For the majority of developing countries the most pressing problems are in the rural areas. Besides, as they have more 'technological specificity' than the urban areas they exert, at least in principle, more potential demand on appropriate technologies.
(b) Mainly by improving the condition of the rural areas, and by creating in them the roots of a new style of development, it will be possible to close finally the gap between the so-called 'modern' and 'traditional' sectors by the building up of a new integrated society.
(c) *The basic principles* involved in the generation of technologies for rural areas are also valid for the whole society, although the mechanisms for their implementation could be somewhat different.

Two of the essential elements of the proposed methodology are the utilization of local knowledge, and the participation of the local people in the whole process. Therefore, before describing the various phases of the methodology, we will refer to those two points.

#### (i) *Local knowledge*

We prefer to use the term 'local' instead of 'traditional' because the knowledge of any social group is composed of a mix of traditional knowledge – in the sense basically of old, of unknown origin, and 'modern' knowledge, in a chronological sense – stemming from the need to adapt continuously to changing ecological and socio-economic conditions.[10]

For many scientists the use of local knowledge appears as a novelty of very doubtful usefulness. They forget that in the most advanced countries of the western world, besides science-based technology, a lot of 'traditional' technology is being used. In almost every field of economic activity – building (the brick was in use in the most ancient cities of the Indus Valley), carpentry, metallurgy, textile industry, ceramics, liquors, cooking etc. – technologies based on traditional empirical knowledge coexist with the most sophisticated science-based technologies. We must remember that common people have had to solve their problems in their

own way much before modern science was born.

In the rural areas of developing countries the utilization of local empirical knowledge is more important still than in modern sectors of those countries, or than in the advanced societies. This is particularly clear in the case of ecological conditions, which are so important for economies based mainly on agricultural production. Most underdeveloped countries are located in the tropical or subtropical areas, in natural environments that have been scarcely studied by the modern R and D systems. The local populations, on the other hand, have had to develop through long experience methods and technologies of production compatible with the physical environment, as a condition for survival. The analysis of those technologies, and of the knowledge contained in them, is the best shortcut to know environmental conditions which otherwise would take a long time to understand.[11]

The utilization of local knowledge is not an easy task because in most cases it is not a problem of simply adopting or upgrading the traditional specific technologies being used, *but one of extracting the original ideas they might contain*, studying them, and applying the resources of modern science. The most important local contribution would probably be, more than in concrete specific technologies, *in new approaches to the solution of old problems, that might stimulate scientific research in hitherto unexplored directions*. Besides the methodological difficulties, this approach requires an unprejudiced and open-minded attitude, that is not one of the remarkable characteristics of the R and D system's connection with traditional knowledge.

(ii) *Local participation*

The recognition of the importance of people's participation in development programmes is not only based on an ideological position – the admission that people have the right to participate in their own development – but also, and mainly, on pragmatic and operational considerations. It has been shown time and again that many development plans in every field have failed because the opinion of the people involved was not taken sufficiently into account.

In the advanced countries, and in the modern or rich sector of developing countries, people have a degree of participation in the generation of the technologies that will affect them. This participation is implemented through a complex indirect mechanism that normally ensures the acceptability of new technologies even before they reach the potential users. For instance, no enterprise will try to commercialize a new product unless a market survey has been performed. Besides, the scientists and technicians who produce the technologies belong to the same milieu as the consumers, so they share their preferences and aspirations; applying the terminology we used when referring to the R and D systems, they share the same set of paradigms.

In the rural areas of developing countries, on the other hand, those mechanisms of participation are almost completely lacking; moreover, the scientists and technicians of the R and D systems belong to a different economic and cultural milieu, so they lack an adequate frame of reference as to which type of technology is best suited for the needs and conditions of the rural people.

The need for the participation of the peasants to develop technologies for the rural areas is also evident considering what we have said about local knowledge. The local population is the depository of the traditional empirical knowledge – including, besides the environment and concrete technological solutions, the socio-economic and cultural characteristics of the community – which can only be transmitted through an active interchange between scientists and the local people.

One of the obstacles that peasants have in identifying and posing clearly their problems, is their ignorance of the possibilities and limitations of modern science. Participation in the process of creation of technologies will help them to overcome that obstacle, and to incorporate an awareness of science as a normal element of their lives, as is the case in the richer parts of the world. Moreover, it is an important objective that the technologies should be produced, as much as possible, by the local people with local resources. The participation of the local population in the process of creation of the technologies will contribute to generating the skills required for their use and production.

However, and despite the growing literature on the subject, there is still a great resistance to the participation of the peasants in development plans, and in the generation of technology. The main reasons given for the hesitation to fully accept peasant participation are that peasants are conservatives and tend to reject anything new, and that they are ignorant and cannot understand modern knowledge and approaches. However, when the reasons for the rejection of specific technologies by the rural people have been seriously studied, it has been found that normally this attitude is based on solid rational ground. In most cases the resistance to adopting

new technologies is based on the fact 'that the adoption of technological innovations cannot be taken in isolation from other factors such as land tenure, social organization and cultural values. The literature on the subject provides many examples of cases where "rational" innovations have been rejected by farmers because of one, or a combination, of these various factors, and not because of any "irrational behaviour" or an abstract "traditionalism" which some authors purport to find among peasants.'[12]

As for the 'ignorance' of the peasants, the point is not how cultivated they are from the point of view of general education, but how much they know about the specific productive activities in which they are involved. On this matter it is obvious that they have a clear advantage over most urban workers. The latter participate normally in a very small segment of the process of production, and have very little idea of the implications of even their own work. The farmers, on the contrary, have to know the whole cycle of production and are, for the most part, entrepreneurs and labour simultaneously.

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(iii) *The stages of the methodology*

In what follows we will describe briefly the main stages of the proposed methodology. It is obvious that these steps do not constitute a strict sequence, as they will greatly overlap in time. The main task – to build up a set of comprehensive, valid assumptions or paradigms – constitutes a dialectic process. A few initial assumptions will form the framework for the definition of technologies, but the experience in their building and application will revert to the assumptions to modify, enlarge or complete them.

The steps of the methodology are as follows.

*Stage* 1

The general socio-economic characteristics of the selected region should be evaluated, in order to understand the dynamic social elements in which a technological problem is always immersed. The approach of the study is based on the principle that 'the technological problems that can be identified as obstacles to the development of backward rural sectors of poor countries, can only be understood in their true dimensions, *by taking as a starting point* the socio-economic processes and conflicts in which each social group is involved; that is, by recognizing that such problems are but one of the aspects of a "problem situation" . . .'.[13] As is well known, in many cases the solution of a technological problem depends more on issues of political, social and economic power, than on scientific research. The failure to recognize this fact has led many well-meaning scientific institutions to solve the wrong problem, in the sense of devising a technological solution that does not fit the conditions of the 'problem situation'. One of the reasons for these mistakes is that the involved organizations tend to forget that the problem situation cannot be adequately identified without the participation of the local people, as the power problems are normally 'ignored' in the higher echelons of decision-making. Through direct contact with the peasants it is possible to identify problems of power – even inside the peasant community – that cannot be perceived by a research institution working in the 'conventional' way. The final result of this stage should be the selection of the technological problems on which research should be concentrated (see Figure 2).

The first step of the process is to identify the poor sector of the population. As is well known, in many projects intended for improving the lot of the poorer sectors of the community, the final results was just the opposite: due to the lack of adequate socio-economic studies and local participation, the projects mostly benefited the richer sector of the peasants.[14]

Through the interaction with the peasants the problems of the community will be identified. It is important to remember that in any community there is a whole hierarchy of problem situations. The first one is what can be called 'The Problem Situation': it arises as a consequence of the type of insertion of the community in a global socio-economic and political system at the national level. In most cases the type of problems posed at this level cannot be solved by technological means.

Typical examples of this kind of problem are those related to the structure of land property, that can only be solved through a radical land reform; or the price changes of exportable products determined by international trade.

At a lower level in the hierarchy problems appear that, although related to the overall problem situation, vary widely their degree of control by the socio-economic and political context.

The problems identified are broadly divided into two classes: those without an R and D component, and those with an R and D component. The first ones are not the concern of the R and D systems, and consequently are left out of the picture.

An example of the first kind of problem – which is frequent in the rural areas of Mexico, for instance – is the case where more appropriate technologies do not substantially improve

Identification of poor sector
Interaction with the community
Identification of problem situations
Problems without an R and D component
Problems with an R and D component
Technical solution not viable
Technical solution viable
Alternative b or c
Alternative a
Problems selected for immediate action
Change of socio - economic context
Research and implementation

Figure 2.

the peasant's condition, because the middlemen and money lenders take all or most of the added profits.

The problems with an R and D component are divided into two categories: those in which the technical solution is not presently viable owing to socio-economic or political constraints; and those for which a technical solution is viable.

In the first category three alternatives are possible: (a) to leave the problem aside until a change in the socio-economic conditions allows them to tackle the technological component; (b) to find a technological alternative to bypass the socio-economic constraints; (c) to use the solution of the technological problem to overcome the socio-economic constraints. An example based on the MAYA report on the Henequen region of the Yucatan, Mexico, can be used to illustrate the three alternatives which we are referring to.[15]

The henequen is cultivated to use its fibre, which is extracted by mechanical means. As a by-product of the process a large amount of bagasse (solid waste) is obtained. The bagasse can be spread in a layer of a thickness of about 35 cm, and used as high fertility artificial soil to grow vegetables. However, a great deal of research is still needed to control pests and plant diseases, as there is not enough experience with the behaviour of this artificial soil in relation to those factors. The peasants, however, do not want to support the research because, owing to the fact that the vegetable market is monopolized in the region, they have problems in selling their small present production; they feel they

will be unable to market an output several times larger, despite the fact that there is still a sizable unsatisfied regional demand.

In this case the three alternatives mentioned can be exemplified as follows:

(a) To wait until the market conditions change. This is the alternative adopted by the peasants at present.
(b) A technological alternative to bypass the market constraint, could be to carry out research to identify some other crop which is both suitable for the artificial soil and which has an open market.
(c) To solve the technological problem in the expectation that increased production will oblige the local authorities to reconsider the situation of the market, or destroy the monopoly by the intervention of other economic interests. This option obviously involves a calculated risk.

Among the problems with a viable technological solution, some or all will be selected by the peasants and researchers for immediate action. The selection will be based on the peasant's priorities and on the possibilities of the R and D system.

The next stage will be research and implementation of the solutions.

The central point in relation to the socio-economic study is that if there has been effective interaction with the peasants, the results obtained through the process just described should be essentially coincident with the interpretation of the socio-economic analysis. On the other hand, the preliminary results of the socio-economic analysis play an important role in helping the scientists to understand the problems of the community, to identify the poor sector, and to appreciate the importance of the technological factors involved in the problems. At the same time the information gathered in the continuous interaction with the peasants serves to correct and enrich the socio-economic study.

As an illustrative example of the application of the first and main stage of the methodology, we will briefly describe the procedure followed by the Ethiopian team in the project sponsored jointly by the United Nations University and the International Development Research Centre, Canada.[16]

The first task of the project teams was to identify the peasant organizations – formal or informal – that best represent the interests of the community. In the case of Ethiopia this was easy as after the 1974 revolution the rural population is organized in peasant associations, with democratically elected authorities, which have a high degree of autonomy in all matters concerning the activities and welfare of the population. To structure the contact between peasants and scientists, a committee in charge of the project was established composed of five representatives of the R and D organization involved in the project, and five members of the peasant association, including its local leader.

The identification of problems was carried out as follows: after a first discussion between the project leader and the chairman of the peasant association and other elected colleagues, a subcommittee of the peasant association composed of nine peasant leaders was established to continue the discussions. Several sessions of dialogue between them and the project leader were then used to define the problems constraining development as the peasants saw them in terms that scientists understood. In other words, the problems were documented as comprehended by the scientists in their definition by the peasants.

Using the scientists' conception of rural problems that constrain development modified to accommodate what was known of the peasants' conception of the problems, a questionnaire was prepared and distributed to all household heads. The categories of important problems that were identified through the questionnaire and the dialogue were essentially the same.

The identification of traditional solutions was accomplished through dialogue, as it was considered that a question of such a generalized nature is difficult to handle in a questionnaire.

The problems constraining rural development and their traditional solutions, as seen by the nine peasants of the subcommittee and as recorded by the project leader, were discussed informally with farmers and scientists. Finally they were discussed and assessed and their technological alternatives reviewed over an intensive 2-day meeting in which the participants were 18 farmers, one administrator from the district administration of the project area, and 29 scientists from the various R and D institutions of the country.

The final result was the identification of 18 major problems – with their traditional solutions and technological alternatives – which included soil erosion and fertility, swamps, forestry, animal pests, insect crop pests, weeds, plant and animal diseases, drinking water etc. For some problems it was found that the traditional technologies were adequate or only needed some upgrading by applying the re-

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sources of modern science, and in others it was determined that new technologies were required.

An interesting example of the first case is soil erosion on steep slopes. The traditional solutions include planting vegetation on the hillsides as well as terracing the land and damming the gullies. Technologically these traditional solutions are sound and there is no need for alternative technologies. The causes for the lack of the wide use of these solutions lay in the lack of peasant organization, and the strengthening of the farmers associations should soon solve the problem. An example of the second case comes from forestry. Addis Ababa depends on *Eucaliptus globulus* for its energy for home consumption; for this reason, landowners during the pre-revolutionary period planted much of the red soil of the region with that tree. The farmers claim that *E. globulus* makes it impossible to grow crops in its vicinity, and even grazing grass is greatly impoverished. Vegetational and microbiological studies have corroborated this claim. As *E. globulus* is a new phenomenon in Ethiopia there are no traditional solutions, and therefore the solution has to come from the modern R and D system.

Finally, the procedure for the identification of technological problems that we have just outlined should be seen as a continuous process; the same interaction between peasants and scientists will continue during the next stage of design and implementation of the final technological solutions.

*Stage* 2

This part of the work is concerned with the determination of the functions that the required technology is expected to fulfil.

The first step is one required in any scientific research into a new area: to ask the very basic questions referring to the specific technological field selected: What is the purpose of the technology? What need or needs must it satisfy? Who will really benefit from the solution? These are only a few of the many questions to be answered: what we want to emphasize is that it is necessary to start by rejecting, as far as possible, any preconception or prejudice about the nature of the multiple needs (social, economic, psychosocial) it has to satisfy.

It seems obvious that this kind of question is always asked when a technology is being developed. The real point is that in the customary work of the R and D systems the answers seem to be generally obvious, for reasons already examined: the scientist is working with problems that belong to his own economic, social and cultural background so he has the tendency to apply the same criteria to a completely different environment. He frequently assumes that he has to satisfy the same needs, but on a lower level, due to limitations posed by the local economic conditions.

A typical example of the mistakes to which this approach can lead is posed by the housing problem. Technologists tend to believe that, given the precarious situation of the peasants, they will be content with any house that offers them a reasonable degree of climatic protection, and a minimum of modern sanitary conditions. The result is that in many cases, to the disappointment of the well-meaning technologists, the peasants prefer to live in their own poor dwellings rather than in the supposedly better new ones. The cause is that a house, besides giving climatic and sanitary protection, has several other roles to fulfil: social, economic, cultural and psychosocial.

An interesting illustration of the above was given to the author about 4 yr ago by a group of scientists of the Indian Institute of Science in Bangalore. A government-sponsored housing development project built a village in the area to resettle peasants living in nearby very poor dwellings. However, the peasants were unwilling to inhabit the new settlement, despite its evident superiority – from the point of view of climatic protection, sanitary conditions etc. – over their traditional houses.

A careful study of the situation showed that the seemingly irrational or 'conservative' attitude of the peasants was actually based on sound socio-economic grounds, as can be demonstrated by the two following findings:

(a) The new houses were built in parallel rows, to facilitate circulation, and wiring in case the electrical public network were to reach the village. In the old village the houses are built in clusters, around open spaces which are the locus of the social activity of the community. In this way the villagers, especially women, can talk and have social interchange with their neighbours, taking care at the same time of their domestic duties. The new spatial distribution of the houses disrupted the whole social life of the community.

(b) In the layout of the new village the animals used for labour – mostly oxen – were kept relatively far from the houses, on the assumption that people prefer not to have those beasts in their backyards. However, for a peasant Indian family those animals are among their most precious possessions, and

so they want to have them under their continuous care and surveillance. It is easy to see that a previous careful analysis – based on the identification of the 'problem situation' – of the functions that the new technology had to fulfil, would have avoided an expensive failure.

*Stage* 3

This stage consists of the analysis of the solutions that the local community has traditionally used. A point that should be kept in mind is that this analysis does not imply that local technologies or ideas *necessarily* have to be incorporated into one being developed. In some instances, it will be found that no idea worth being used is embodied in the traditional technologies.

An interesting example of a valuable idea contained in a traditional technology is given by the preservation of meat, a difficult problem for countries with poor transportation, particularly in the tropical regions. In many rural areas of Latin America people expose meat to solar heat under certain conditions that they know through long experience. The resulting product can be stored for long periods. The central idea of this technology is the utilization of solar radiation, a cheap and always available source of energy. This idea, coupled with modern science to improve the process from the biological, sanitary, nutritional and economic points of view, could help to solve one of the important problems of the rural areas.

*Stage* 4

A general survey of the natural resources of the area should be carried out.

The most important concept to adhere to in this stage is that there is not such a thing as a 'natural resource'; 'resource' is an economic term, and nature does not produce economic things. It produces only physical entities that, with the application of knowledge, and in certain economic conditions, can be used for the benefit of society.

This elementary concept is frequently forgotten in developing countries, and there is a tendency to consider as natural resources those regarded as such by the industrialized countries. So the research must include not only the products of nature that have been already used as resources, but also those that can have a potential application for the problem area being studied.

*Stage* 5

With the information gathered in the previous steps, a set of assumptions or paradigms will be derived which will be the frame of reference for the final step to developing the required technology. The set of assumptions – which will contain scientific, technological, environmental, economic, social, psychosocial and anthropological information – will define a '*technological space*' which is basically the set of requirements and constraints that the technology has to satisfy.

In finally building the technology, all possible solutions that fit the technological space should be considered. As is well known, from a certain body of scientific knowledge many technological solutions to a given problem can be devised. The existence of an adequate frame of reference allows the exploration of a multiplicity of possible paths, and the selection of the one best suited to the particular situation. Another result of this procedure is to give coherence to technologies pertaining to different fields of activity.

It is obvious that once the set of paradigms has been built, in some cases the required technology will already exist, and there may simply be a question of adaptation and introduction into the area. In other cases, it may be a problem of combining existing technological elements in a different way. Finally, in other cases it will be necessary to devise an entirely new technology. In most instances, however, it will probably be a problem of combining some of these alternatives.

It should be emphasized, finally, that in this methodology endogenous generation of technology refers to the process through which the characteristics that the technology should have are determined. The *endogenous* is the process of definition and not necessarily the technology itself, which can be imported, provided it is appropriate. In this way the transfer of technology becomes an integral part of the process of generation of technology.

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# Education, Employment and Inequality in LDCs

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**Summary**. – This paper presents a review of empirical links between education, employment and inequality in developing countries. In particular it discusses the issue of relative validity and the normative aspect of inequality indices, and breaks down the inequality theme into before-, during- and after-schooling components. This paper also contains an agenda for future research in this area.

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## 1. INTRODUCTION

The theme of social inequalities is a recurrent one in the literature of social sciences. Its boom usually coincides with periods of economic recession. Thus the economic growth decade of the 1960s was followed by the inequaltiy concern of the 1970s.[1] As it usually happens, this theme was first developed in advanced countries and then quickly adopted by developing countries.

This paper reviews some of the key issues centring around inequalities in education and employment in developing countries and suggests some areas that in my opinion should receive research priority. In doing so, I first point at the normative aspect of the inequality debate, explain the strengths or weaknesses of alternative measures of inequality and use several numerical examples (from LDCs as well as DCs) to illustrate the case.

## 2. THE NORMATIVE ASPECT OF THE INEQUALITY DEBATE

Before embarking on a discussion of inequalities of any kind the reader should be well aware of the normative character of the debate: what looks 'unequal' to one person might look 'more equal' to another person. For example, consider the first row in Table 1 that shows the value of the Gini coefficient for urban India in 1968, being equal to 0.46. How unequally (or, perhaps, equally) are incomes distributed in India?

Obviously one cannot answer this question from the value of the Gini coefficient. What one must consider *in addition* to the Gini coefficient, is how heavily equality weighs among one's values; or, to put it technically, with what weight equality enters into one's welfare function.[2] The less one values equality, the more equal the distribution of income will look to his eyes, regardless of the exact value of the Gini coefficient. To put it in other words, there is no absolute standard of the degree of economic (or any other) inequality in our society. The degree of inequality or equality depends upon our values.

To reverse the same argument, the proliferation of the literature on inequalities of different kinds in recent years means that even 'small' values of the Gini coefficient would appear to represent 'very unequal' distributions to some observers or that the world community has shifted its concern towards the way incomes are distributed.

## 3. THE RELATIVE VALIDITY OF INEQUALITY MEASURES

Although there exists no absolute standard of inequality, the different indices that are available in this respect (like the Gini coefficient considered earlier) have a bench mark value for interregional, international or simply overtime comparisons. For example, the figures in Table 1 show that income distribution has worsened between 1955 and 1968 in urban

* An early version of this paper was presented at the IIEP Inter-Agency seminar on Inequalities in Educational Development.

Table 1. *Gini income inequality measures in India, Iran, the USA and the UK*

| Country | Sample coverage | Year | Gini coefficient |
|---|---|---|---|
| India | Urban | 1968 | 0.46 |
| | Urban | 1955 | 0.42 |
| | Rural | 1968 | 0.48 |
| Iran | Urban | 1968 | 0.50 |
| USA | National | 1966 | 0.40 |
| UK | National | 1968 | 0.34 |

Source: Jain (1975), pp. 52, 54, 56, 115, 116.

India and that urban incomes are distributed more equally than rural incomes.

Similarly, Indian officials may compare their country's position to that of Iran and be happy (or, depending on their values, possibly unhappy?) that India is less unequal relative to Iran and regret (?) the fact that India is more unequal relative to the USA and the UK.

But even if we accept the *relative* validity of Gini coefficient differences over time or between regions,[3] what significance shall we attach to differences such as 0.04 Gini points? Does the 0.04 Gini points difference between 1955 and 1966 in India represent 'a lot' of extra inequality or just 'a little bit'? Clearly, such questions lead us back to the normative aspect of inequality comparisons, something that must be borne continuously in mind when considering the relevant indices and, alas, something that is so often forgotten.

## 4. SOME PROPERTIES OF COMMON (AND LESS COMMON) INEQUALITY INDICES

Let me use a simple example to demonstrate the fact that the degree of inequality depends upon the choice of the inequality measure and that all inequality indices embody (implicitly or explicitly) value judgements about what constitutes a more equitable or less equitable situation. Consider a society of three persons with income levels of $50, $100 and $1000, respectively. In Table 2 I have labelled this the 'original' distribution. What is of interest, is how this state of income distribution will change after a particular policy that amounts to income transfers from a richer person to a poorer person.[4]

Two possible policies are considered in this respect and the equality effects of each policy are compared to the original distribution by means of four alternative indices. Both policies amount to a $20 transfer from a richer to a poorer person. Policy D1 amounts to a transfer from the person who is in the middle of the distribution to the person at the bottom, whereas policy D2 amounts to a transfer from the richest person in this 'society' to the one in the middle.

The most common statistical measure of comparing the degree of dispersion of the two distributions relative to the original one is the variance of absolute incomes (or the standard deviation, or the coefficient of variation, all of which give similar ranking orders relative to the point I wish to make here). The result is that policy D2 is more equitable than policy D1 in the sense that the latter gives a lower variance than D2. (See Table 2.) The number of asterisks shows visually the relative strength of each policy in reducing inequality according to a particular index. However, if we adopt the variance of the logarithm of earnings as an alternative inequality measure, the above statement is reversed. As shown by the relative number of asterisks, policy D2 is more equitable than policy D1.

Let me hasten to add that there exists no objective answer to the question: What index is better? The answer depends upon one's values and these values have already been *implicitly* incorporated in the two inequality measures.

A third common measure of inequality is the Gini coefficient. Application of it to our hypothetical distributions gives a third kind of result, namely that both policies are equally effective in reducing inequality: yet distribution D1 is clearly very different from distribution D2. This is the classic insensitivity case associated with the Gini coefficient, namely the area between the diagonal and the Lorenz curve can

Table 2. *A comparison of alternative inequality measures*

| Distribution before and after policy | Income of | | | Variance | | Gini coefficient | Atkinson ($\epsilon = 2$) |
|---|---|---|---|---|---|---|---|
| | Mr. A. | Mr. B. | Mr. C. | Absolute | Log | | |
| Original | 50 | 100 | 1000 | 190,556 | 1.640 | 0.550 | 0.75 |
| D1 | 70 | 80 | 1000 | 190,156* | 1.497** | 0.539* | 0.72** |
| D2 | 50 | 120 | 980 | 178,822** | 1.560* | 0.539* | 0.73* |

Source: Simulation example (see text).

remain the same in spite of the fact that income distribution has changed (see Atkinson, 1970).

The implicit value judgements associated with the common inequality indices and the insensitivity of the Gini coefficient have been somehow removed by the recent Atkinson inequality measure.[5] The formula for its derivation (the explanation of which is beyond the scope of this paper) contains an explicit parameter ($\epsilon$) for the value one puts on equity (or inequality aversion). The higher the value of $\epsilon$, the more unequal any given distribution will be judged. What is perhaps more important, is that the algebraic specification of the underlying welfare function is such, that transfers at the lower end of the distribution count more heavily than transfers on the top. Thus, assuming (arbitrarily) a weight of $\epsilon = 2$ in our numerical example, we get the same result (see Table 2) about the two alternative policies as in the case of the Varlog inequality measure: namely policy D1 gives a more equal distribution relative to policy D2.

I conclude this section by advocating greater use of either the Varlog and the Atkinson inequality measures, relative to the absolute variance and the Gini coefficient.

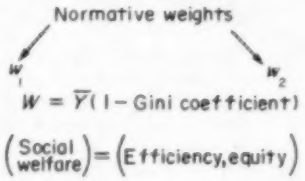
## 5. THE TRADE-OFF BETWEEN EQUALITY AND EFFICIENCY

Another issue that is seldom (if ever) made explicit in inequality discussions, is the possible trade-off between equality and efficiency. It is unlikely that a particular policy geared mainly towards the reduction of inequality of any kind would be neutral regarding its efficiency effects. For example, it is often thought that the reduction of inequality will be accompanied by a loss of efficiency (i.e. sharing the pie between too many recipients reduces the size of the pie as well). This is not always true, however, and the first point made here is that one should try to assess empirically the algebraic sign of the trade-off. The second point is that if a negative trade-off exists, one must specify the relative weights he puts on efficiency and equity. For example, if a high weight is put on equity, then an efficiency loss following a particular policy might be offset by the inequality reduction.

Therefore, the issue of efficiency trade-offs can be broken down into two subissues:

(a) A *positive* issue, namely, is there a trade-off in the first place and what is its direction and magnitude?
(b) A *normative* issue, namely, what is one's value judgement on how much efficiency is worth relative to what equity is worth?

To put it more technically, one is faced here with: (a) an *empirical question* on how efficiency (e.g. *per capita* income, $\bar{Y}$) will be affected by a given policy that reduces an inequality measure (say, the Gini coefficient in the following formula that represents social welfare), and (b) a *value judgement*, namely what weights ($W_1$ and $W_2$) to attach to the two arguments of the social welfare function ($W$)?




Admittedly, the adoption of social welfare weights is a very difficult task if not completely arbitrary. But how often are we told about the possible efficiency effects of a particular policy geared towards equality?

I would like to cite in this respect a recent study by Adelman and Robinson (1978) in which they simulate the effect of alternative policies on a large number of variables of the Korean economy. Table 3 presents a sample of their findings, i.e. a comparison of the efficiency and equity effects of a tax policy and an educational policy. Although the *size* of the effects of either policy is by no means dramatic (and I commit myself to a value judgement at this point) the *signs* of the direction of those changes constitute a textbook demonstration of trade-offs in the equity–efficiency quandary. That is, both policies reduce the corresponding inequality measures. But it is only the educational policy that has a beneficial efficiency effect (in the sense of increasing *per capita* income).

## 6. THE COMPONENTS OF INEQUALITY IN EDUCATION AND WORK

The area of inequalities in education and work is vast and therefore I have tried to set up a taxonomic device that will hopefully enable one to easily trace the variety of inequality components. Table 4 specifies four time periods within which such inequalities can be observed:

(a) *Before schooling* starts. Inequalities in this case take the form of group disparities or opportunity of access to different levels of education. The foremost exogenous variables considered here are the child's genetic ability, his family background, regional origin and sex. Family background can in turn be measured by family income or the hierarchy

Table 3. *Efficiency and income distribution effects of two alternative policies*

| Policy | Change in *per capita* income (%) | Change in the value of the Gini coefficient |
|---|---|---|
| 1. Double direct tax rates on households and half indirect tax rates | −0.5 | −0.003 |
| 2. Upgrade the skill composition of the labour force* | +0.5 | −0.006 |

Source: Adelman and Robinson (1978). Policies refer to comparative statics A.1 and D.5 in the above source.
* This policy represents an increase in the supply of engineers, technicians, skilled workers and white-collar workers by 10% each and a corresponding reduction of the number of unskilled workers.

Table 4. *A taxonomy of inequality components in the area of education and work*

| Time of occurrence | Research labels | Main variables considered |
|---|---|---|
| Before schooling | Group disparities<br>Differential access<br>Equality of opportunity | Genetic ability<br>Family background<br>Regional origin<br>Sex |
| During schooling | Educational production functions<br>Wastage | School achievement<br>Promotion<br>Repetition<br>Grades<br>Terminal educational attainment |
| After schooling | Income distribution<br>Earnings functions<br>Success in life | Labour earnings<br>Goodness of an occupation<br>Employment opportunities |
| Lifetime | Path analysis<br>Recursive models | All factors listed above in time sequence |

(or goodness, or prestige rating, or desirability) of the occupation of the father. Evidently, these measures correlate highly with the urban–rural origin of the child.

The usual analytical 'tool' for researching the area of inequalities before schooling is percentage distribution comparisons, e.g. what part of the population has a father who is a farmer against what part of the population gets access to a particular school.

(b) *During schooling*. Inequalities in this case take the form of unequal performance of children within schools, like differences in verbal and mathematical achievement or the eventual level of educational attainment they reach. Wastage and repetition are also treated here and these 'dependent' variables are related not only to school-specific variables (like teachers and equipment) but also to the previously specified ultimate exogenous variables (like sex and family background).

The analytical tool *par excellence* for analysing inequalities in this area is the 'educational production function', a term much loved by economists (because it links to their home literature) but hated by educationalists (as they claim education 'produces' much more than what usually appears on the left-hand side of such functions).

(c) *After schooling*. Inequalities here take the form of adult:

(i) income disparities,
(ii) employment opportunities, or
(iii) 'success in life'.

Income disparities have been extensively dealt with by economists in the last 10 yr or so, mainly under the research headings of

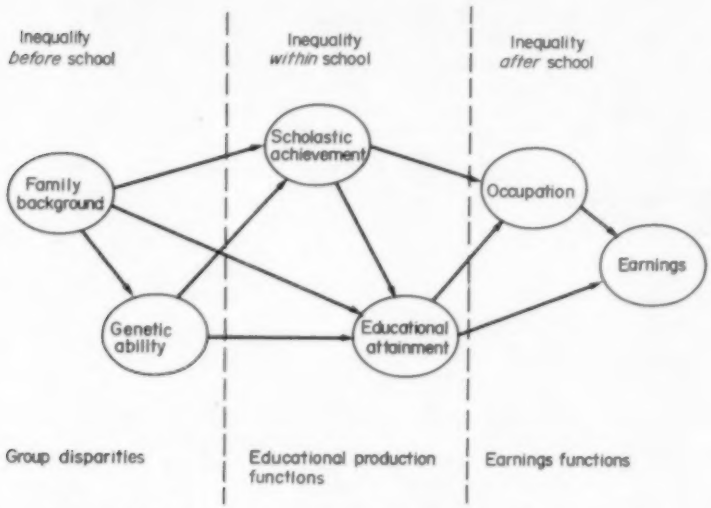



Figure 1. *Path analysis as a linkage of the three inequality components.*

'earnings functions', or discrimination. Employment opportunities and job conditions have received increased attention only during the last 5 yr and are analysed under the headings of 'dual labour markets' or 'youth unemployment'. 'Success in life' has been a parallel activity by sociologists that has been going on for many years. Their essential concern has been the same as that of economists, although their main dependent variable was the prestige rating of an occupation instead of just the monetary earnings associated with it.

In recent years, however, the work of sociologists is analytically very similar to that of economists and both teams proceed to analyse the same social phenomenon (in this case adult disparities) in a true interdisciplinary way.

(d) *Lifetime*. Under this heading come analyses that attempt to treat all disparities listed above in a simultaneous way and thus avoid obvious overlaps, or gain new insights (if not obtain more correct and unbiased statistical measures). The analytical tool *par excellence* in this respect is 'path analysis', something imported mainly from sociology, although economists have been using it for many years under the label of 'recursive models'. The form of path analysis, however, and the measurement of variables in a standardized way (i.e. as deviations from the mean divided by the standard deviation) are more intuitive and make easier the interpretation of the results.

Figure 1 recapitulates in a path diagram form the different components of inequality we shall trace in the rest of this paper. In each of the four sections that follow we shall give a few key results and an evaluation of the research state.

### (a) *Inequalities before schooling*

With the only possible exception of monozygotic twins, people are born unequal: they differ in weight, colour, sex, family background and genes. The question we are interested in is whether through some kind of policy one could reduce the unequal chances they have towards success later in life. (It should be noted that this is a big value judgement, as what I consider to be 'success' might not in fact be shared by other people.) This could be done via compensatory policies towards poor family background or genetic ability. What are the facts in this respect?

It is my contention that inequalities in education start from differential access to the nursery school. For it is believed that the sooner the child is partly removed from an adverse family background, the better are his chances of catching up with children from more prosperous backgrounds.

I am not aware of studies of access to nursery school by family background or region in LDCs where the young age population is expected to grow at three times the rate of the corresponding population in DCs (UNESCO, 1976, Table 1.2).

In view of the existent pressure towards allocation of educational funds to the higher

Table 5. *Selected inequalities in Brazil*

| Population characteristic | | Enrolment ratio in basic education | Average number of years of schooling | Monthly earnings (in 1970 cruzeiros) |
|---|---|---|---|---|
| Males | Non-farm | 78 | 4 | 873 |
| | Farm | 45 | 1 | 252 |
| | Low SES, non-farm | 63 | 2 | 247 |
| | Low SES, farm | 37 | 1 | 91 |
| Females | Non-farm | 77 | 3 | 380 |
| | Farm | 45 | 1 | 112 |
| | Low SES, non-farm | 64 | 2 | 187 |
| | Low SES, farm | 37 | 1 | 64 |

Source: Jallade (1977), Table 1.

Table 6. *Distribution of students by father's occupation, Tunisia*

| | Occupational rank (percentage) | |
|---|---|---|
| Educational level | Highest | Lowest |
| Primary | 1 | 44 |
| Secondary | 6 | 17 |
| Higher | 11 | 12 |

Source: Simmons (1974), Table 10.

levels of schooling, I predict that nursery education will not receive the attention it deserves in LDCs in the near future. What is needed here is research on its potential compensatory value against an adverse socio-economic background.

When we move from nursery education, the evidence becomes more apparent although it is by no means abundant. Table 5 shows huge enrolment disparities in Brazil between different regions, economic sectors and socio-economic groups. (The reader should treat the last two columns of this table as evidence belonging to the following sections of this paper.) Table 6 documents the same point regarding socio-economic background in Tunisia. And so does Table 7 for Kenya.

The differential participation rates to higher education of different socio-economic groups are linked to another trend of inequality – the tax–subsidy finance structure. Whereas all citizens pay taxes, and the more prosperous groups much more than the rest of the population, it is the most prosperous groups that mostly send their children to higher education. It has been found in developed countries[6] that the effective subsidy rich people receive this way is more relative to the taxes they pay when compared with the less prosperous families. This has clearly been found to be the case in Kenya (Fields, 1975) and we also have a study on Brazil (Jallade, 1977). But what about other countries?

A research theme I would like to see *avoided* in the LDC context is the genetic ability–environment controversy. This is an issue that has not yet been settled in DCs[7] and I just cannot see how this could be answered by the kind of data that are available in LDCs. Furthermore, if this question is ever settled in DCs, the results should also apply to LDCs as this is an issue of human nature rather than conditions specific to a particular country.

### (b) *Inequalities during schooling*

Once children have gained access to a particular school, further inequalities develop that might hamper their performance in school, reduce the level of their eventual attainment and hence their later 'success' in life. These issues are analysed in the context of educational production functions that relate a measure of school achievement (say, the verbal

Table 7. *Parental characteristics of higher education students in Kenya*

| Parental characteristics | University students (percentage) | All adult males |
|---|---|---|
| Father in high- or middle-level occupation | 35 | 3 |
| Father is secondary school + graduate | 22 | 2 |
| Father owns 25+ acres of land | 38 | 7 |

Source: Fields (1975), Table 1.

Table 8. *School effects on achievement*

| | Proportion of total variance explained | Proportion of variance explained by school effects | Proportion within the explicable variance attributable to school effects |
|---|---|---|---|
| Uganda | 10 | 3 | 31.7 |
| India | 24 | 8 | 33.3 |
| Iran | 17 | 9 | 52.9 |
| Belgium (Fr.) | 26 | 12 | 46.2 |
| Thailand | 37 | 23 | 62.2 |
| Italy | 24 | 6 | 25.0 |
| Chile | 25 | 6 | 24.0 |
| Hungary | 31 | 5 | 16.1 |
| Australia | 39 | 11 | 28.2 |
| New Zealand | 45 | 8 | 17.7 |
| West Germany | 34 | 14 | 41.2 |
| Sweden | 36 | 7 | 19.4 |
| Netherlands | 49 | 10 | 20.4 |
| Finland | 44 | 10 | 22.7 |
| USA | 36 | 7 | 19.4 |
| UK | 52 | 7 | 13.5 |
| Japan | 40 | 4 | 10.0 |
| Scotland | 55 | 9 | 16.4 |
| Overall mean | 36 | 9 | 25.0 |

Source: Heyneman (1976a), Table 5.

score) to a set of independent variables (like student, teacher and school characteristics), e.g.:

Verbal score = *f*(student's IQ, teacher's qualifications, school teaching equipment).

There exist two good reviews of educational production function work – one for the United States by Averch *et al.* (1974) and one for developing countries by Alexander and Simmons (1975).

The results obtained from these functions are very mixed. Starting from the Coleman (1966) report, background and family factors tended to dominate school-related factors in educational achievement. Jenck's (1972, p. 53) work concluded that 'educational inequality does not explain cognitive inequality to any significant extent. The amount of schooling an individual gets has some effect on his test performance, but the quality of his schooling makes extraordinarily little difference.' Brown and Saks (1973) however, claimed that one of the reasons school inputs appear to be ineffective in relation to school output (i.e. achievement) is that the observations mostly consisted in whole class scores, rather than the test scores of individual students. Although the mean test score for a whole class remain unchanged, the distribution of test scores within the class can be affected.

Regarding LDCs, the estimates we have until now in our hands [based mainly on the Alexander and Simmons (1975) survey] indicate the following:

(a) The results for LDCs are not very different from those for DCs.
(b) Home background has a strong influence on student performance at the primary and lower secondary level.
(c) More and better teaching facilities do not seem to affect dramatically the rate of learning.
(d) The positive 'student-peer affect' is not as conclusive in LDCs as it is in DCs.
(e) Boarding facilities are likely to improve student performance as this policy amounts to removing the student from an often adverse, non-conductive-to-study, home environment.
(f) It cannot be confirmed that larger class size affects adversely student performance.
(g) Teacher qualifications are more important for student achievement at the upper secondary level than at the lower levels of education.
(h) Expenditure per student is not an important predictor of student achievement.
(i) Textbook availability is an important predictor of achievement at the primary level.

Table 9. *Correlations between socio-economic measures and pupil performance in Uganda*

| Socio-economic measures | English language test |
|---|---|
| Mother's education | 0.12 |
| Father's education | 0.17 |
| Father's occupation | 0.17 |
| Possessions in the home | 0.11 |
| Summary socio-economic status | 0.16 |

Source: Heyneman (1976b), Table 2.
Note: All correlations are highly significant.

Typical results of educational production work are presented in Tables 8 and 9. Table 8 shows the total variance explained and the proportion thereof explained by schooling variables. Although the figures are impressive, it is not yet clear in what kind of country context (DC or LDC) school variables explain the most. But as Table 9 indicates, background variables significantly correlate with pupil performance in Uganda.

My own reaction to educational production function work is that it relates too much to what a whole class is doing, i.e. how the bad students *and* the good students will be affected by the availability of more textbooks (a common 'independent variable' in such work). What I would like to see is focus on the low achievers only, experimentation with provision of more textbooks to them and observation of the results after some period of time. In analysing the whole student population one may fail to isolate the effect of policy variables on the 'target group' which in this case is the low achievers.

(c) *Inequalities after schooling*

This is the part of the inequalities' sequence in Figure 2 that has received the major research attention in both DCs and LDCs.

The analysis takes the form of explaining income distributions, the unit of observation being the household, the region or the individual. The analytical research tool is the 'earnings function' which relates the earnings of a particular income recipient unit (say, a wage earner) to a string of personal characteristics, e.g.:

$$\text{Earnings} = f(\text{age, schooling, other characteristics}).$$

The use of earnings functions has necessarily shifted attention from the use of the Gini coefficient as an inequality measure to that of the variance of the logarithm of earnings. This measure has the properties described earlier in this paper and is by no means the best available. But it has the great advantage of computational convenience, namely one can simulate alterna-

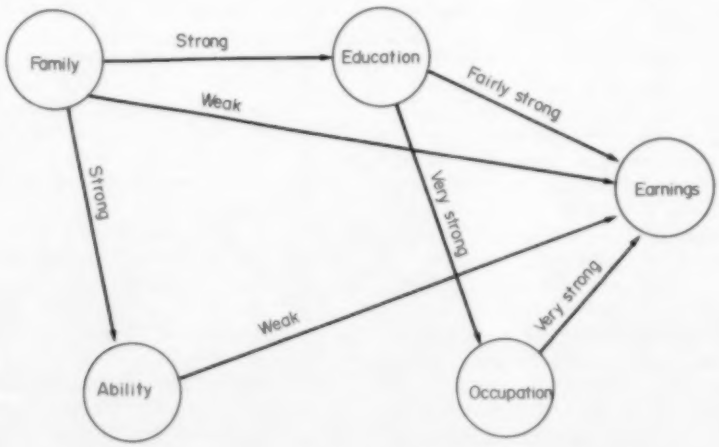



Figure 2. *The relative strength of direct paths in DCs.*

Table 10. *Total explanatory power of earnings functions in developing countries*

| Country | $R^2$* | Source |
|---|---|---|
| Brazil | 0.50 | Vellosso (1975) |
| Colombia | 0.57 | Fields (1976) |
| Colombia | 0.32 | Fields and Schultz (1977) |
| Colombia | 0.24 | Kugler *et al.* (1977) |
| Cyprus | 0.44 | Demetriades and Psacharopoulos (1979) |
| Iran | 0.84† | Psacharopoulos and Williams (1973) |
| Kenya | 0.42 | Thias and Carnoy (1972) |
| Mexico | 0.73 | Carnoy (1967) |
| Malaysia | 0.80† | Hoerr (1973) |
| Morocco | 0.44 | Psacharopoulos (1977b) |
| Peru | 0.50 | Toledo (1975) |
| Singapore | 0.50 | Wai (1975) |
| Singapore | 0.37 | Fong (1976) |
| Taiwan | 0.55 | Gannicott (1972) |
| Thailand | 0.51 | Blaug (1974) |
| Turkey | 0.16 | Kasnakoğlu (1978) |
| Vietnam | 0.16 | Stroup and Hargrove (1969) |
| Yugoslavia | 0.54 | Thomas (1976) |
| Nigeria | 0.34 | Hinchliffe (1976) |

* $R^2$s are not strictly comparable due to the different variables used in each study.
† Indicates use of grouped data, hence the high $R^2$.

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tive income distributions using packaged statistical programmes (such as the SPSS).

A review of earnings functions, their properties and applications in advanced countries is found in Psacharopoulos (1975). A review of 11 LDC earnings functions cases is found in Psacharopoulos (1976). Since then, a flood of earnings functions applications has appeared in the literature to the point of being difficult to keep track of them. (See Table 10.)

The obvious question that arises is: What have we learned from the prolific application of such functions? The following is a succinct answer:

(a) The *total explanatory power* of the usual string of variables considered is of the order of 40%, it seldom rises to 70% and practically never exceeds this figure. Table 10 gives a list of $R^2$s from these functions. What the value of total explanation means, is that there remains a great deal of income inequality that is unaccountable by our measured independent variables or there remains a great deal of randomness in the way individual incomes are generated. Of course, to go one step further from this statement and interpret the randomness as 'luck' [à la Jencks (1972)] is equivalent to stretching one's imagination.

(b) One of the *most important variables* in explaining earnings is *age* or its experience transform. (Experience = age minus years of schooling, minus compulsory school entry age.)

(c) *Schooling* is nearly always a significant variable in earnings function work, although the size of the corresponding coefficient has been subject to controversy. Consider for example an earnings function result for Morocco (Psacharopoulos, 1977b, Table 2, regression R.2):

$$\ln Y = \underset{}{5.363} + \underset{(0.005)}{0.158S} + \underset{(0.006)}{0.079EX} - \underset{(0.00001)}{0.001EX^2}, R^2 = 0.44,$$

where $S$ stands for the years of schooling of the individual worker, $EX$ for the years of labour market experience, and where numbers in parentheses are standard errors.

How should we decide on whether the 0.158 coefficient of years of schooling is on the 'high' or the 'low' side? The answer in this case is that it is on the high side since the particular specification of the function (semi-log) is such that the coefficient on $S$ is interpreted (after some simplifying assumptions are made) as the private rate of return to investment in schooling, which is equal to 16% in this case. Table 11 shows a collection of coefficients on $S$ in earnings functions for LDCs.

Table 11. *The value of the coefficient of schooling in semi-logarithmic earnings functions applied in developing countries*

| Country | $\frac{\partial \ln Y}{\partial S}$ (%) | Source |
|---|---|---|
| Brazil | 17.2 | Velloso (1975) |
| Colombia | 16.1 | Fields (1976) |
| Colombia | 16.9 | Fields and Schultz (1977) |
| Colombia | 9.9 | Kugler *et al.* (1977) |
| Cyprus | 12.5 | Demetriades and Psacharopoulos (1979) |
| Iran | 5.7 | Psacharopoulos and Williams (1973) |
| Kenya | 4.8 | Thias and Carnoy (1972) |
| Malaysia | 5.3 | Hoerr (1973) |
| Morocco | 15.8 | Psacharopoulos (1977b) |
| Mexico | 15.0 | Carnoy (1967) |
| Taiwan | 6.0 | Gannicott (1972) |
| Thailand | 4.6 | Blaug (1971) |
| Vietnam | 16.8 | Stroup and Hargrove (1969) |

Note: Coefficients are not strictly comparable because of the different independent variables used in each study.

The earning's functions literature has grown spectacularly in the last 5 yr (especially on offbeat US applications) and is beginning to show its limits. The perennial problems have been those of simultanaeity (i.e. supply *and* demand, rather than just supply factors determining the equilibrium work period and wage rate) and the association vs causation interpretation one can give to the results. Recent attempts to validate the existence of labour market segmentation using the earnings functions-tool have been futile in DCs[8] and the same argument applies for LDCs. Perhaps the most promising area of earnings functions applications is within the poorer strata of the population. That is, instead of splitting a sample into 'upper and lower' (*sic*) segments, concentrate on the pay determinants and try to improve the lot of low paid workers. To put it differently, I think a lot can be gained analytically by concentrating on the problem area, the lower tail of an income distribution, than by trying to analyse the whole distribution and its determinants in one computer run.

### (d) *Inequalities before birth to adult life*

This area of research refers to a summary of the three inequality components discussed thus far in a recursive way. The value of recursive models becomes evident when one thinks of the danger of concentrating only on inequalities after schooling, abstracting from earlier factors that led to such inequalities.

Path applications are abundant for the US but scarce for other countries, DCs or LDCs. Perhaps the most famous (and equally controversial) application in the US is the one by Jencks (1972).[9] Other path analyses for DCs include:

(a) Sweden (Fägerlind, 1975),
(b) UK (Psacharopoulos, 1977c),
(c) Australia (Heady and O'Loughlin, 1978), and
(d) Netherlands (Dronkers and De Jong, 1978).

Regarding developing countries I have come across the following path applications:

(a) Singapore (Wai, 1975; and Fong and Wai, 1975),
(b) Peru (Toledo, 1975),
(c) Brazil (Velloso, 1977),
(d) Thailand (Leonor, 1976a), and
(e) Turkey (Kasnakoğlu, 1978).

In fact, I am not aware of path applications in countries other than those listed above, although I know that work is in progress on this front in Italy, Greece, Malaysia, Germany and France.[10]

It is very difficult to summarize what we have learned thus far from LDC application of path analyses. The problem is that the procedures followed by the different authors are very diverse, some stop short of examining earnings (like Velloso, 1977), some examine only first-job earnings (like Leonor, 1976a) and some are mostly concerned with the econometric properties of the underlying model. The feeling one gets from these applications, how-

ever, is that the results are not inconsistent with those in DCs.

What we do seem to know from DC applications is summarised by the arrows of Figure 2.[11]

Thus, family background influences strongly the level of education one attains and 'ability', as measured by the usual IQ tests. It must be remembered that this ability proxy might have little to do with the unobserved genetic ability of the individual. For this reason it might not be surprising that the effect of measured ability on earnings is very weak. The two strongest effects in path analysis are usually from education to occupation and from occupation to earnings. The direct effect of education on earnings has been subject to controversy [for example Jencks (1972) found the corresponding path coefficient equal to 0.050 and dismissed this arrow as insignificant]. However, a lot of other US applications contradict this view. In addition, when one takes into account the indirect effect of education on earnings (via occupation) its total effect is substantial. In the UK work already cited the total effect of education is equal to 0.264.

Although path analyses provide the most intuitive display of results linking inequalities before birth to those observed in adult life they have their limitations. For example, interaction effects have no place in the neat temporal sequence (although they can be accounted for separately à la Fägerlind, 1975). Also, more fancy algebraic specifications are out of the question and a host of other variables do not fit the path models (like age). In the remaining sections of this paper we shall discuss some additional inequalities related to education and work, coming under the headings of regional disparities, unemployment and basic needs.

## 7. REGIONAL DISPARITIES

It is a commonplace fact that educational resources and outcomes are unequally distributed within any given country. What is not well documented, however, is: (a) the magnitude of regional disparities in LDCs, (b) the extent to which one should worry about such disparities, and (c) what policies, if any, should be enacted to change the disparities.

In spite of the fact that educational statistics in practically all countries of the world are collected on a regional basis, the literature is not rich on comparative regional studies of educational and other inequalities in LDCs. (But see Heyneman, 1978.) Debeauvais (1975a) reports wide primary-school enrolment discrepancies of primary-school enrolments in Algeria where the near 100% rate for the capital is contrasted to a 60% for El Asnam and Tiaret. He also documents rather sharp differences in participation between sexes. Similarly, Table 12 documents regional and overtime differences in the mean years of educational attainment in Italy. This table shows that even in more advanced countries regional inequalities not only exist, but they tend to persist over time.

Table 12. *Mean years of educational attainment in Italy*, 1951–1961

| Region | Year | | 1951–1961 change (1951 = 100) |
|---|---|---|---|
| | 1951 | 1961 | |
| North-west | 5.2 | 5.5 | 105 |
| North-east | 4.7 | 5.1 | 109 |
| South | 3.6 | 4.2 | 116 |
| Italy | 4.4 | 4.9 | 111 |

Source: Debeauvais (1975b), p. 71.

The second point I would like to raise regarding regional inequalities is that before one raises his hands in despair he might wish to ask an efficiency question. How appropriate would it be for the given educational budget to be allocated equally to all regions, or that all children receive the same level and quality of education? Clearly, the social demand for education in some regions might be low and in others high. Beyond the paternalistic, merit good provision of compulsory basic education, there is little one could do (or should do) to force children to stay on in school.

Actually, it might pay on overall economic efficiency grounds to withdraw the provision of a certain kind of education in some provinces so that certain families are encouraged to move out of a depressed area (say a coal-mining district) and migrate to other expanding areas.

For example, consider the US' anti-regional policy of paying farmers *not* to cultivate their land so that eventually their sons will move out of agriculture and speed up an unavoidable adjustment process.

The third point I would like to raise is that the 'regional' inequality aspect overlaps to a great extent with the 'personal' inequality aspect examined in the previous sections. For example, in trying to explain personal inequalities for the country as a whole (i.e. differences in incomes) by means of personal characteristics *and* regional characteristics would amount to double-counting in view of the fact that the two kinds of characteristics correlate highly (e.g. people in depressed regions have low levels of schooling).

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Table 13. *The relative power of personal vs regional characteristics in explaining income distribution*

| Country | Year | Explained variance of log earnings by (percentage) | |
|---|---|---|---|
| | | Personal characteristics | Regional characteristics |
| Colombia | 1973 | 24 | 4 |
| Brazil | 1960 | 26 | 6 |
| Brazil | 1970 | 33 | 5 |

Source: Fields and Schultz (1977), Table 13.
Note: Personal characteristics include education and age.

Table 14. *Unemployment rates by level of education*

| Country | Educational level (percentage) | | | |
|---|---|---|---|---|
| | Illiterates | Primary | Secondary | Higher |
| Colombia | 11.5 | 15.3 | 14.9 | 13.2 |
| Argentina | 3.8 | 4.3 | 5.7 | 3.3 |
| Venezuela | 4.3 | 7.0 | 10.2 | 2.3 |
| India | 1.2 | 2.7 | 7.0 | 2.8 |
| Ceylon | 7.1 | n.a. | 11.8 | 2.3 |
| Malaysia | 10.4 | 19.5 | 30.9 | 15.5 |
| Syria | 4.3 | n.a. | 11.7 | 4.4 |
| Kenya | 21.0 | 21.0 | 13.0 | 17.0 |
| Iran | 10.0 | 8.1 | 13.0 | 2.6 |
| Sudan | 2.0 | 2.5 | 5.5 | 5.0 |
| Kenya | 21.0 | 19.0 | 17.0 | 12.0 |
| Chile | 12.1 | 4.6 | 1.3 | 0.0 |
| Dominican Republic | 22.4 | 17.9 | 9.2 | n.a. |
| Nicaragua | 23.8 | 14.0 | 12.2 | n.a. |

Source: First nine countries above based on Turnham and Jaeger (1971). Five remaining countries based on Mulat (1975) for the Sudan, and Ramo (1973) for the rest.
Note: Comparability between countries and educational levels is limited because of different definitions and sample populations.

Table 13 shows that personal characteristics have at least four times the power of regional characteristics in explaining earnings in Colombia and Brazil.

What I consider to be the challenge for research in this area is: (a) a systematic analysis of the abundant regional data in LDCs, with a view to (b) defining criteria of unacceptable levels of inequality (in regional participation or outcome) that should be subject to remedial policy.

## 8. EDUCATION AND UNEMPLOYMENT

It has been well established that educational inequalities lead to other kinds of inequalities later in life. The kind of inequality that has received most attention is the one referring to income (or occupational status in the work of sociologists). But what about those who are unemployed and are usually not included in the sample?[12]

That the level of education relates to the incidence and duration of unemployment is another commonplace fact. The *way* it relates though is subject to debate. Regarding the incidence of unemployment, the first survey of its kind (Turnham and Jaeger, 1971) suggested that the peak of the unemployment rate corresponds to secondary-education graduates. Subsequent evidence, however, tends to cloud this finding. (See Table 14.)

Regarding the length of unemployment Table 15 shows that in at least two countries it tends to be related to the middle levels of schooling.[13]

There exist at least two theoretical reasons why the level of education and unemployment might be related:

Table 15. *Education and the duration of unemployment*

| Sudan | Educational level | Mean duration in months |
|---|---|---|
| | Illiterates | 10.4 |
| | Primary graduates | 11.6 |
| | Secondary incomplete | 12.3 |
| | Secondary | 9.8 |
| | University | 10.0 |
| India | | Percentage more than 9 months unemployed |
| | Illiterates | 19 |
| | Literate but below secondary | 48 |
| | Secondary | 52 |
| | Higher | n.a. |

Source: Sudan from Mulat (1975), p. 19.
India from Turnham and Jaeger (1971), p. 52.

Table 16. *Income distribution and self-employment*

| Brazil | Self-employed classified as 'poor' 51% | |
|---|---|---|
| Bolivia | Income status of selected population groups | |
| Group | Percentage in the population | Percentage of income received |
| Self-employed (traditional) | 5.5 | 1.9 |
| Peasants (≤5 ha) | 19.7 | 6.7 |
| Self-employed (modern sector) | 6.4 | 44.1 |
| Unskilled workers | 24.5 | 8.4 |

Source: Brazil from Fishlow (1972), p. 393.
Bolivia from Morrisson (1978), Table 10.

(a) The more education one receives, the higher the dispersion (variance) of wage offers one faces and thus the longer one is likely to search.
(b) The higher the level of education one receives, the higher the opportunity cost (in terms of foregone earnings) while unemployed and thus the shorter the search is likely to be.

The interaction between (a) and (b) above is an empirical matter and cannot be assessed by just looking at cross-tabulations such as the ones presented in Tables 15 and 16. What one needs is employment incidence and employment duration functions that would explain the fact that someone is employed and the length of his (most often uncompleted) unemployment spell, standardizing for other factors. The effect of education on unemployment under the *ceteris paribus* assumption can be examined in a function of the form:

$$U = f(\text{age, educational level, curriculum kind, other personal characteristics}).$$

Type of curriculum is another important variable in this respect as we have theoretical reasons to believe that those, say secondary-school graduates, who have followed general education are less willing to accept manual jobs and thus remain unemployed for a longer period of time. (For evidence in this respect see the ILO, 1971 report on Ceylon.)

It is very unfortunate that the literature has thus far given extreme emphasis to earnings functions and has neglected employment functions.[14]

## 9. SELF-EMPLOYMENT AND BASIC NEEDS

Another bias of the LDC research literature is towards dependent employment vs the self-employed. Yet the latter constitute a sizeable part of the population in these countries receiving a meagre proportion of income. (See the Brazilian and Bolivian examples in Table 16.)

What is the relationship between education and the economic performance of the self-employed? This is a question we can hardly

answer even in the advanced countries context. To answer it in the LDC context would be even more difficult due to the elusive character of the jobs of the self-employed. (See Sethuraman, 1976.)

Perhaps the only proposition we have documented in this area is that those of the self-employed who are farmers are doing better the more educated they are (see Chaudhri, 1974; Leonor, 1976b; and Jamison and Lau, 1978).

Another promising area might be to help those out of work to become self-employed in the modern sector instead of joining the ranks of the unemployed. How to do this is a new research challenge.

Discussing those at the lower tail of the occupational, employment or income distributions brings us to the concept of basic needs. Turnham and Jaeger (1971, pp. 90–91) report an extremely low calorie and protein intake of the poorest population groups in some LDCs.[15] Remembering that a man doing heavy work requires around 5000 calories a day, one wonders what is the value of investigating whole distributions of earnings (occupational status and the like) rather than concentrating at their lower end. This has been certainly the line pioneered by the ILO in recent years and quickly followed by other international organizations, such as UNESCO and the World Bank. Among the possible policies discussed towards basic needs, the obvious question is what is the value of education? The study by Turnham and Jaeger (1971, p. 90) gives us a hint that calorie and protein intake correlate very highly with family income, especially at the lower end of the income distribution. Therefore, if education can raise the incomes of the poor it can certainly contribute towards the poor satisfying their most basic needs. So, the question reduces to: Can education raise the incomes of the poor?

Several microstudies (referred to previously) have answered this question in the affirmative and there is no need to go once more through the by now trivial arguments of screening or dual labour markets. What I will do instead is present the results of some macrochecks on the potential equalizing value of education.

## 10. SOME MACROCHECKS ON THE EQUALIZING VALUE OF EDUCATION

Does 'more education' lead to a more equal distribution of income? We will try to give some evidence in this respect in two steps: first, referring to education in general and, second, referring to particular levels of education.

Table 17 gives a measure of income inequality (the Gini coefficient), a measure of educational inequality (the variance of enrolments) and *per capita* income in a number of countries. It has been shown that income distribution is better explained by the educational distribution rather than the catchall factor of *per capita* income (Psacharopoulos, 1977d).

Regarding the particular level of education that contributes most to inequality reduction, it has been found that this is the *lower* level. For example, experiments with Mexican data gave the following results (see Marin and Psacharopoulos, 1976):

Experiment A. Give primary education to 10% of those without.
Change in $\text{var}(\log Y) = -4.7\%$.

Table 17. *Income distribution, educational inequality and* per capita *income in selected countries*

| Country (1) | Income inequality GINI (2) | Educational inequality EDINEQ (3) | *Per capita* income (in US $) (4) |
|---|---|---|---|
| Brazil | 0.54 | 0.87 | 207 |
| Colombia | 0.62 | 1.01 | 275 |
| France | 0.50 | 0.56 | 1732 |
| Greece | 0.38 | 0.65 | 591 |
| India | 0.33 | 1.07 | 95 |
| Japan | 0.39 | 0.51 | 838 |
| Netherlands | 0.42 | 0.54 | 1400 |
| Philippines | 0.48 | 0.92 | 240 |
| Sudan | 0.40 | 1.10 | 97 |
| UK | 0.38 | 0.63 | 1590 |
| USA | 0.34 | 0.46 | 3233 |

Source: Psacharopoulos (1977d).
Note: Educational inequality is based on the variance of enrolments between educational levels within each country.

Experiment B. Give secondary education to 10% of those with primary schooling.
Change in var($\log Y$) = 4.6%.

Experiment C. Give higher education to 5% of those with secondary education.
Change in var($\log Y$) = 1.5%.

The equalizing value of the lower levels of education has been confirmed for DCs as well. (See Psacharopoulos, 1978.)

## 11. A POSTSCRIPT ON RESEARCH PRIORITIES

In the preceding sections I went through a mélange of topics that relate to inequalities in education and employment in LDCs. Let me now try to pull the threads together and suggest some research axes that in my opinion should receive priority. Remembering that the ultimate concern here is how to increase social welfare via educational policy, I would like to start casting my suggestions in the economist's traditional 'what-how-whom' way.

*What education to provide*? This question could be split into two parts. First, what *level* of education to provide and second, what *kind* of education to provide. The first is a quantity-of-education question and we do have solid research results on it. Namely, it is the lower levels of education that lead to increased efficiency and equity; also the higher level passes the efficiency test, especially in LDCs. What we are not so sure about is what subject content to give to a given level of education. Beyond the classical challenge of technical education (Foster, 1968) this issue has recently started to be reanalysed (Psacharopoulos, 1980). This leads me to:

*Suggestion No.* 1: Investigate the relationship between given curricula types and the labour market performance of graduates.

*How should education be provided*? This is a technological question that links to educational production function work. In spite of the lack of a generalized theory of learning we have already obtained important hints on the role of the family towards a given educational outcome. However, we are not yet sure exactly which attributes of the family influence educational achievement so that compensatory action could be taken within schools for those from low social origins. Therefore, it looks appropriate to make:

*Suggestion No.*2: Investigate the impact of specific family characteristics on the student's educational achievement.

*For whom education should be provided*? Again, this is an area where we have a lot of solid results, most of them suggesting that it is the poor who finance the education of the rich. (See Psacharopoulos, 1977e.) The problem is how to make it politically palatable that certain groups of the population should pay for the education of their children. I believe that increased documentation of the above not-so-intuitive proposition would create a climate more conducive towards charging selective fees. This makes me put forward:

*Suggestion No.*3: Continue documenting the extent to which universal free education is socially inequitable.

*The self-employed*. It might not be an exaggeration to say that 99% of what we know on the relationship between education and social inequalities is based on samples of persons employed for wages or salaries. Given the fact that self-employment (especially when one includes agriculture) is more dominant in LDCs relative to DCs, I make:

*Suggestion No.*4: Investigate the way specific levels and kinds of education relate to the economic performance of the self-employed.

*The bottom tail*. It has been pointed out at several places in the preceding sections that a more direct approach towards understanding inequalities in education and employment is to focus on the lower tail of the educational achievement, socio-economic group, income and employment distribution. Another way of looking at the same problem, is splitting the question into two parts. First, how to provide a minimum amount of education as a right (say towards the 3 Rs and employment) and how to remove obstacles of access towards the higher levels of education and jobs. In view of the fact that the first part of this question is likely to affect a multiple of the population of part two, this makes me out forward:

*Suggestion No.*5: Focus research towards satisfaction of the basic-needs end of the educational and income distributions.

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*Compensatory policy factors*. Factors that affect educational or economic outcomes could be divided into completely exogenous (like sex, genetic ability, father's occupation and the like) and those that could be manipulated by policy (like the amount or kind of education provided). Given the fact that one cannot change exogenous factors, what we would like to know as policy-makers is the relative strength of subject-to-manipulation factors in compensating for adverse exogenous factors. We do have some evidence on DCs in this respect (Papanicolaou and Psacharopoulos, 1979), but what about LDCs? Therefore I propose:

*Suggestion No.6*: Investigate the relative compensatory power of specific educational policies for adverse exogenous factors.

*Policy means*. Let me end by bringing back the first point I made in this paper, namely that all inequality indices are subjective and one must bring into the analysis an additional (value judgement) criterion for making a decision. I believe that our role as educational analysts should be limited to working out the particular efficiency, equity or employment implications of alternative policies and thus serving a policy-implications menu to the politicians. One way of doing this is via simulation experiments (à la Adelman and Robinson, 1978; Psacharopoulos, 1978; Marin and Psacharopoulos, 1976; or Blaug *et al.*, 1980). Therefore, my final proposition for a research axis in this area is:

*Suggestion No.7*: Experiment with simulations of the effects of particular policies on the components of a social welfare function.

## NOTES

1. For a review of the proliferation of the literature in this respect, see Atkinson (1975).

2. This point is further elaborated in Section 4.

3. This validity has been challenged as explained in Section 4.

4. Although income was chosen for the sake of this example, the distribution could refer to anything, like the distribution of years of educational attainment in the population or access to particular schools in different regions of the country.

5. See Atkinson (1970) and for an application to a developing country Psacharopoulos (1977a).

6. For this original empirical discovery see Hansen and Weisbrod (1969), and for the ensuing controversy see Pechman (1970), and Hight and Pollock (1973).

7. For a collection of essays on this topic see Taubman (1977).

8. See Cain (1976), Psacharopoulos (1978), and McNabb and Psacharopoulos (1980).

9. For collected criticisms of this study see the February 1973 issue of the *Harvard Education Review* and the October 1974 issue of the *Comparative Education Review*.

10. *Italy*: Antonelli's Ph.D. research at the London School of Economics is based on a specially raised sample in North Italian cities.

*Malaysia*: Lee's Ph.D. research at the London School of Economics is also based on a special sample in urban Malaysia.

*Greece*: My research is based on a sample of 8500 employees in urban areas.

*Germany*: Krug's work at the University of Trier is based on the German Micro Census.

*France*: Work by Tachibanaki (Kyoto University) is based on the INSEE 1970 tapes.

11. For a numerical summary of the underlying coefficients in the US, UK, Sweden and Netherlands, see Psacharopoulos and Tinbergen (1978).

12. It should be remembered that even if a survey has raised data on those unemployed and hence with zero earnings, these people are usually removed from the statistical analysis that takes the logarithm of income as the dependent variable because of the log(0) problem!

13. For a discussion of the inverted U-shape relationship between employment and education see Blaug (1973).

14. As an example of such functions applied to the UK, I refer the reader to Nickell (1979).

15. Calorie intake of the order of 1500 g and protein of the order of 40 g.

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# Co-operatives and the Poor: A Comparative Perspective

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**Summary.** – Co-operatives have a universal appeal as an instrument of poverty alleviation and yet their record has been less than exemplary. This paper highlights dilemmas faced in co-operative development between the objectives of growth and distribution, and those between decentralization and equity. The paper identifies the various internal and external prerequisites for a successful co-operative movement. By examining the evidence with regard to marketing, credit and production co-operatives it argues that in the absence of such prerequisites, alternative forms of institutional arrangements may be as, or more effective than co-operative institutions. In any case a healthy movement which reaches the poor calls for institutional competition.

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## 1. INTRODUCTION

Traditionally, co-operatives have been expacted to serve a broad set of socio-political and economic objectives ranging from self-help and grassroot participation to welfare and distribution, including exploitation of economies of scale and social control over resource allocation and mobilization. However, these various objectives are not mutually consistent. Because there is a substantial trade-off in the realization of many of these, it is necessary to weigh their relative importance in the needs and priorities of the individual country at any given point in time if performance of co-operatives is to be evaluated in an appropriate context. An attempt to fulfil a range of these conflicting objectives simultaneously has led to a broadbased disenchantment with the co-operative movement.

This paper highlights two sets of issues with respect to co-operative development. First it discusses the dilemmas faced in the short run between the objectives of growth and distribution and those between decentralization and equity. The growth–distribution dilemma involves an inherent contradiction between the goal of local resource mobilization and the subsidies needed to reach the poor. The decentralization–equity dilemma similarly results in a contradiction between the objective of grassroot participation and the paternalism frequently essential to achieve the welfare objective. This paper illustrates that these dilemmas and contradictions are far more significant in explaining the limitations of co-operatives than is the concept of co-operation.

This paper further points out the various external prerequisites in the form of physical infrastructure, market information, regulatory institutions, technology, pricing policies towards commodities and capital, that an effective co-operative movement entails, in addition to the normally recognized internal one of proper management. In the absence of these varied prerequisities and especially due to the lack of recognition of the need for external provisions, co-operatives tend to be inefficient relative to other forms of traditional institutions even after receiving subsidies and other types of assistance, thus neither achieving efficiency nor equity.

By analysing the three areas of agricultural marketing, credit and production in which the co-operative movement has traditionally been most active, this paper illustrates the various dilemmas and contraditions, and the preconconditions necessary for co-operatives to reach the poor effectively. Finally, the paper points out the implications of the past experience for the future role of the co-operative movement.

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* Senior Economist, the World Bank. The views expressed in this paper are those of the author and do not necessarily represent the views of the World Bank. Jayanto Rao made helpful comments on an earlier draft, and Brian Mellor reviewed literature.

This paper is based on a draft prepared for a deliberation on the subject held by the International Co-operative Alliance at Loughborough, UK, in August 1977.

(a) *The growth–equity dilemma*

For a variety of reasons discussed in this paper, in situations of asset and income disparities the cost of providing services to the poor is greater than that of reaching the relatively rich. The greater the disparities in distribution, the greater are these differences in costs, and, therefore, the greater can be the tendency in the short run to concentrate on growth, thus accentuating the existing disparities. Latin American countries that suffer from skewed asset distribution provide by far the most dramatic examples of the growth–equity dilemma. A faster rate of growth in the short run, however, does not necessarily imply a more rapid growth rate in the long run, as the savings constraint to growth in the short run may over time be replaced by an effective demand constraint, if domestic income disparities worsen with growth, and if international trade prospects are not adequate to absorb increases in a country's domestic output. Once again countries such as Brazil, Mexico and Columbia illustrate the pressure to explore export markets arising out of limited domestic demand to sustain growth. Apart from increasing effective demand in the long run, a more broadly based strategy may also lead to a more effective use of the totality of resources, particularly if such a strategy involves education and training of the masses of the poor and, therefore, leads to their effective participation in institutional development and productive activities as exemplified by Taiwan and Japan. There is, therefore, often a conflict between the objectives of growth in the short-run vs that of growth with distribution and participation in the long run.

To resolve the growth–distribution conflict, it is essential either that there be structural change and redistribution of assets of the type that occurred in China and Cuba or to a lesser extent through a paternalistic land reform in Japan and Taiwan. Alternatively or concurrently, the greater cost of reaching the poor has to be met by subsidies as is being attempted in Sri Lanka and Tanzania. Both these approaches, however, assume the national will to alleviate the problems of the poor as the greater resources required must in the final analysis come from the rich, assuming that they are not provided through international transfers. Evidence indicates that despite the rhetoric, the commitment for domestic transfers is relatively weak in most countries.[1]

Further, even if politically feasible, the tax-subsidy programme must be devised carefully, as frequently generalized subsidies only reinforce the allocation of resources away from the poor, as would be illustrated later. On the other hand, subsidies targeted specifically towards the poor are often easy to evade, particularly if income inequalities are not acute. Targeting programmes towards the poor is also administratively demanding. And most important, subsidies frequently hamper self-help and local resource mobilization thus paving the way for perpetual dependence on external assistance.[2]

(b) *The decentralization–equity dilemma*

Ownership of land is frequently closely associated with social status and political power. In situations of asset disparities, emphasis on rural self-help and grassroot participation, therefore, frequently leads to the control of local organizations by the rural political elite, resulting in a disproportionate allocation of the scarce development resources in their favour. Thus although decentralization may shift the centres of political power and responsibilities for developmental functions from the urban to the rural sector, it frequently results in the perpetuation, if not worsening, of socio-political differentiation, especially as improvement in the welfare of the rural poor is much more directly in conflict with the interests of the rural élite than those of the urban élite. To the extent that it was viable the Panchayati Raj experience in many states in India leads one to this conclusion. Where such socio-political differentiation is significant in rural areas there would either be need for change that would redistribute political power and social status as has happened in Mainland China or alternatively equity would call for centralization and/or paternalism. The importance of paternalism to avoid the inequitous effects of local political participation in management is illustrated by the successful Anand Dairy Co-operative phenomenon in India. Japan and Taiwan provided such a cushion through a strong central leadership during critical periods of their own development. For paternalism/centralization to be effective in alleviating the problems of the poor and in generating self-reliance and participation at the grassroots, a variety of prerequisites must exist.

First, there must be adequate knowledge of the constraints which come in the way of improving living standards of the poor. This is critical particularly as there is considerable variability in the relative importance of the specific problems faced by the poor in individual situations. The perception of these con-

straints is frequently based on stereotypes that considerably distort the reality, leading to misdirection of interventions and reducing their effectiveness, as would be illustrated later. Once the constraints are correctly identified there must be a critical examination as to whether co-operative institutions are necessarily the best suited for removing them, and to ascertain the ways of ensuring the various internal and external preconditions needed for the effectiveness of co-operative organizations. Such an examination may frequently suggest that these preconditions cannot materialize, and that, therefore, alternative institutions may be relatively more efficient in reaching the poor. To present the analysis of marketing, credit and production co-operatives in this context, and the reasons for their ineffectiveness, it is essential, however, first to understand the nature of the poverty problem, and the concept of co-operation.

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## 2. THE NATURE OF THE POVERTY PROBLEM

A major part of the poverty problem originates in the asset distribution and productivity levels in the rural sector, both of which have very considerable implications for interclass and interpersonal relations, and, therefore, for the effectiveness of co-operative organizations. The rural poor may be classified into three categories: the landless, the marginal farmers and the small farmers. Incomes of the landless are low because of limited employment opportunities, and low productivity of labour. Whether labour- or capital-intensive technology is used in cultivation is therefore as important in determining income distribution as is distribution of land. Marginal farmers may be defined as those with land too inadequate to make an acceptable level of living from cultivation, either because of the small size of the holding or the poor resource base. Small farmers may be classified into those that are at a subsistence level of income and others who earn considerable income from sale of their marketed surpluses. The relationship of the resource base with incomes is important as frequently the more privileged middle-level peasants in many developing countries cultivate farms which are not significantly larger than those cultivated by subsistence farmers. The disparities in incomes arise from differences in the productive potential of their land, allowing introduction of new, more profitable enterprises.

The more privileged rural classes frequently also belong to socio-politically more dominant classes, tribes or castes. The Kikuyus in Kenya, the Marathas and the Jats in western and north-western India respectively are examples of the dominant class, tribe (or caste) correspondence phenomenon. When higher social status and political power are combined with ownership of productive services, middle-level peasants can acquire access to technical know-how, inputs and capital that is frequently far in excess of their initial share of cultivable land or of the total income generated from it.

The small initial disparities in the incomes of the privileged and those not so privileged, therefore, often increase over time, first from the initial differences in access to services, and subsequently from the increased savings and investment that the productivity of initial services makes possible. In countries where land market prevails, the income disparities may also lead to disparities in asset ownership, if increased investment takes the form of expansion of cultivated land by eviction of tenants, purchase or acquisition of land from other small and marginal farmers, and adoption of land-improving measures such as irrigation or soil conservation on such expanded holdings.

The size and distribution of landholdings owned and operated by individual farmers and the relative disparities in incomes and wealth of course vary considerably among countries as do absolute levels of poverty.[3] Where a majority of the country's cultivable land is controlled by a relatively small population of large landowners, as in many parts of Latin America, the proportion of the landless and the marginal farmers tends to be high. Rural poverty is also most acute in areas of high population density and land pressure as in parts of South Asia. A great deal of such populations may move into cities in search of employment and better living standards, rather than face the problems of asset disparities and differential opportunities in rural areas, thus weakening the basis for organizing effective participation in institutions for the poor.

This is so especially as the rural poor have little or no political power and few means of organizing themselves to achieve economic benefits without threatening the viability of the social structure, which frequently depends on their own socio-economic status. Being at the margin of subsistence, the economic risks of socio-political disruption are also greater for the poor although the ultimate benefits may appear to be more attractive, provided that such disruption is viewed as leading to an improvement in their status.[4] The poor usually have little or

no access to education, and, therefore, have a disproportionately high share of illiteracy, affecting their ability to participate meaningfully in organizations dealing with complex developmental functions such as management of marketing and financial institutions. Their ability to participate actively is frequently also hampered by ill health and susceptibility to diseases.

The implications of these various characteristics of the poor for achieving grassroot participation and equity need to be examined carefully particularly in view of the appeal of Owenism among the political leaders of developing countries.[5] This attraction has often been combined with the view that there exist in traditional societies, spontaneous tendencies and well-developed mechanisms to co-operate for mutual benefit, and that such traditional forms of co-operation can be an effective means of broadening participation in development. The Ujamaa policy in Tanzania or the Panchayats in India are illustrations of the attempts by national leaders to mould traditional organizations into means of modernization and change, without regard to the real socio-political differentiation such as that outlined earlier.[6]

This attempt by political leaders is perhaps prompted by the realization, albeit implicitly, that the greatest impact on the levels of living of the poor has to come from a more equitable use of assets and increases in the productivity and employment in the agricultural sector. If broadly distributed, such income increases can also provide a further impetus to growth through linkages with the manufacturing and the service sector as goods and services demanded by lower-income classes in developing countries provide considerable scope for development of the relatively more labour-intensive small- and medium-scale industry in comparison with the large organized industry that tends to be capital-intensive and requires a more organized capital mobilization.[7] Without increase in the incomes of lower-income classes, lack of adequate effective demand causes a major constraint to increasing employment in the small-scale manufacturing and the service sector. The discussion in this paper is, therefore, largely confined to agricultural co-operatives, although many of the observations also apply to co-operatives related to small-scale manufacturing.

## 3. THE CONCEPT OF CO-OPERATION

Given that poverty is as much a socio-political and technological problem as it is economic, what prerequisites have to exist for co-operatives to be successful? If some or none of these prerequisites exist, how broadly should the coccept of co-operation be interpreted to internalize these prerequisites and thus for co-operatives to be effective? And what particular segments of the rural poor can be reached by what type of co-operation? Such analysis is essential, especially in view of the recent attempts to re-examine the historical European origins of the co-operation concept. What has been described as 'the pragmatic European view' by Munker (1976) perceives co-operatives as entirely voluntary organizations formulated with a view to deriving economic benefits for its members through a common enterprise on the basis of two important criteria: mutual co-operation and self-help.[8] According to this concept, benefits arising from undertaking a co-operative enterprise are to be distributed in proportion to the contributions of individual members, without in any way aiming to bring about equity in income distribution through co-operative organizations. Exponents of this view conclude that, unlike European co-operatives, those in developing countries are frequently expected to cope with far too many constraints, and that this is one of the main reasons why co-operatives are often ineffective in benefiting the poor.[9] If this is a correct assessment, under what circumstances should one discard co-operative organizations and explore alternative forms of institutions?

The broader concept of co-operation, on the other hand, acknowledges the interaction between economic and socio-political power and, therefore, recognizes the frequent need either for structural change or for political mobilization for co-operatives to be able to benefit the poor. According to the broader view even with such change or innovation, but particularly in the absence of either, parternalism and external assistance in the form of leadership, management and finances are inevitable as a step towards more voluntary and self-reliant co-operatives in the long run. The performance of marketing, credit and production co-operatives is therefore viewed in the context of these various considerations.

## 4. CHOICE OF MARKETING INSTITUTIONS FOR REACHING THE POOR[10]

### (a) *Prevailing views about traditional markets*

The appeal of co-operatives has been the greatest in the removal of perceived exploi-

tation in the marketing of agricultural produce. It is generally believed that collusive tendencies and price fixing are rampant in traditional rural markets as there are only a few intermediaries at each level of marketing. Marketing costs are also believed to be high as there usually is a long chain of intermediaries from the producer to the consumer. Small farmers are seen to be the greatest victims of marketing inefficiencies because of their meagre marketed surpluses and poor bargaining position. Introduction of marketing co-operatives is, therefore, considered to be an effective way of reducing market margins and improving the prices received and paid by farmers. A guaranteed co-operative marketing channel is also seen to be an effective way of facilitating an increase in the production for the market.

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### (b) *Performance of traditional markets and factors affecting performance*

#### (i) *Market structure*

Despite differences among countries both with regard to the stages of market development and to availability of documentation, considerable evidence has accumulated in countries as different as India, Bangladesh, Nigeria, Indonesia and Kenya with regard to the working of traditional markets dispelling the stereotypes such as those earlier about the degree of oligopolistic tendencies and spatial and seasonal price differences.[11] Lele's studies in India and similar studies in former East Pakistan and West Africa indicate that entry in traditional trade is usually free and that generally there is overcrowding and significant competition at each level of marketing. Unlike in the case of most co-operative organizations and marketing corporations, rural traders have low overhead costs. They work on low margins and earn a meagre income. This is an important factor in determining relative efficiency of traders in comparison with the more organized marketing institutions, particularly as both the size of the market and size of individual transactions tend to be small in the case of low-income farmers and the unit costs of handling tend to be high.

Few traders are nevertheless seen to handle a large share of the marketed surplus in many markets. Again, studies indicate overwhelmingly however – most notably in India – that large traders are not able to influence prices through collusive action if transport facilities and exchange of market intelligence among producing markets and between producing and consuming markets are effective, the implication being that it is the provision of transport facilities and market intelligence which are more important policy instruments than introduction of co-operatives in removal of exploitation.

#### (ii) *Intermarket price differences*

Because of poor transport facilities, contrary to the general view, differences in the prices received by small and large farmers are frequently far less significant than those between markets with or without good transport connections.[12]

Excessive price differences among markets arise because of:

(a) poor dissemination of price information and poor communication facilities which do not allow transmittal of the knowledge of price disparities effectively among markets – and reduce the incentive for the producers to take their produce for sale in the other nearby markets;
(b) inadequate and unreliable transport facilities that often result in accumulation of surpluses in producing areas and shortages in consuming centres, especially when production is seasonal:
(c) poor handling facilities that result in losses in the quantity and quality of produce during movement of the produce;
(d) lack of implementation of standard weights, measures and/or marketing charges that allow scope for cheating, and
(e) lack of enforcement of an open bidding system.

Lele's studies on India show why markets seem more inefficient than they actually are. Some of the reasons are:

(a) price differences among varieties and grades of produce which lead to the impression of monopolistic elements in trade if price data in the two markets being compared do not refer to the same grade or variety;
(b) movement restrictions imposed by the government that increase rather than reduce price disparities;
(c) speculative tendencies that are caused by frequent overall shortages, and often exacerbated by sudden imposition and withdrawal of government restrictions on trade; and
(d) inadequate storage facilities at various stages of marketing which lead to forced sales particularly in the case of perishable produce.

These factors suggest that the solution to monopolistic practices is not necessarily to replace private trade with other organizations such as co-operatives, but rather through governmental action to remove the conditions which lead to monopolistic practices, irrespective of whether the monopoly consists of the private, the co-operative or the public sector. Lele's field investigations of government and co-operative marketing institutions in India, Ethiopia, Kenya and Tanzania have indicated that employees of marketing co-operatives and government boards frequently indulge in malpractices in grading, weighing and pricing similar to those attributed to private traders, especially when these institutions operate in a monopoly situation. Discouragement or abolition of traditional trade or its replacement by a co-operative or a public-sector organization often only exacerbates inefficiencies, by reducing the number of alternative marketing channels open to cultivators and thus by increasing opportunities for monopolistic practices.[13] Because of the lack of competition, co-operative cotton processing monopolies in Uganda were able to continue operating regardless of the services they provided, or the costs they incurred. Attempts by Government to regulate the co-operatives by restricting profit margins failed because the inefficient ginneries shut down rather than increase efficiency. Because of the lack of alternative markets the Government was forced to rescind control. The abolition of traditional marketing co-operatives by the Tanzanian Government in the mid-1970s was clearly explained in terms of their servicing a small class of commercial farmers. On the other hand, if co-operatives are encouraged to operate simultaneously with traditional traders, they can play an important role in increasing competition, provided: (i) the size of the market is large, (ii) co-operatives are operated efficiently, and (iii) they at least offer a service that is comparable with that offered by traders. The Anand Dairy Co-operative in India has decidedly established its superiority over the private trade on the basis of the services offered to milk producers.

Traders frequently provide a number of important services that cannot be replaced by government or co-operative agencies, without incurring substantially greater financial costs in administrative manpower and finances.[14] For instance in the Chilalo Agricultural Development Unit in Ethiopia, the cost (excluding overheads to the project management) of marketing wheat between Asella and Addis Ababa were more than twice as much as those incurred by private traders. Many other agricultural projects in Africa have encountered problems due to undertaking similar high-cost market interventions. They function in the least accessible areas, where government or co-operative machinery frequently does not reach. They meet an important credit need for the small producers, including the need for consumption credit. This is one of the reasons why the management of the Walamo Agricultural Development Unit in Ethiopia began to provide consumption credit to farmers.[15] Government agencies are unable to lend credit in small amounts, particularly for consumption, without incurring substantial administrative costs and defaults. Case studies of a number of African projects carried out in the World Bank indicated that the timely availability of the much needed credit is an important reason why farmers are often seen to turn to private traders, even if co-operative marketing channels are available.[16] Also, contrary to the general view, farmers are often paid more promptly by traders than by co-operatives, as the payment procedures used by traders are frequently simpler. The same case studies also showed that prices paid by co-operatives may also not be higher as the promises of second payments often do not materialize, either because of mismanagement and consequently high operating costs, or because of poor judgement related to future price movements.[17] Apart from the fact that the first payments made by co-operatives are frequently lower than the prices paid by traders, a non-working multiple payments system reduces the trust in the ability of co-operative to fulfil promises made with regard to prices. A well-conceived pricing policy involving guaranteed minimum prices is, therefore, essential for marketing co-operatives to operate effectively. Until the 1973–1974 food crisis many developing countries, however, lacked any conscious pricing policy, particularly in the case of food crops which constitute an important part of the marketed surpluses sold by low-income farmers. On the contrary, the case studies of African projects indicated that objectives of governments frequently have been at odds with those of farmers in the case of food marketing. As food has usually been in short supply and the pressure to meet urban demand at low prices is considerable, governments have been eager to acquire control over the maximum share of the marketed surpluses at low statutory prices, whereas farmers have aimed to maximize their income by selling their produce at high open-market prices. This conflict in objectives frequently leads to a tendency among producers

to sell their surpluses to private traders.[18] Although this phenomenon is observed most strongly in the case of food crops, similar tendencies are often noted with regard to export crops, particularly as selling surpluses to private traders can also facilitate evasion of the repayment of credit borrowed from co-operatives, again as shown by the World Bank African case studies.

(iii) *Marketing of inputs*

Co-operatives may nevertheless be effective in selling inputs as market margins for fertilizers and seed are often fixed through government policy.[19] Even if pricing poses fewer problems for co-operatives in the case of inputs, their effectiveness in getting inputs to small farmers nevertheless depends on timeliness of imports, the extent to which small farmers can make use of inputs effectively once these are sold, and the effectiveness of the system for distribution. The author's observation of donor-assisted projects in Africa indicates that there is often considerable difficulty in ensuring timeliness of the right type of input supply to farmers even when inputs are distributed through co-operatives. This is because the technological package is often not well specified, and, therefore, the wrong inputs are ordered or errors are made in specifying needs when input requirements are identified and communicated to major suppliers, imports are not made by governments on time and the domestic delivery system is not well organized to get inputs to village co-operatives even if the imports arrive on time. As a result of these various factors, even though introduction of co-operative distribution frequently reduces the problem of adulteration of inputs, encountered in their sale by traders, the delays and inappropriateness in distribution reduces return to input use and creates difficulties in further promotion of new technology. Even with more trained manpower, the Indian experience with input distribution through co-operatives has been better only in degree over that of African countries.

On the other hand, if the demand for modern inputs is low, the private sector is usually reluctant to get involved in input distribution, as costs of distribution tend to be high in relation to the prices that can be charged. In such situations co-operatives can play an important role in the promotion of input use, provided that such use is demonstrated to be profitable, and small farmers have access to credit, although there are difficulties in ensuring them credit as outlined in Section 5.[20] Of course, under such circumstances, input distribution would require subsidies until the market is developed sufficiently to reduce costs. However, for the reasons discussed later in Section 5, once general subsidies are introduced to cover costs of distribution, it is difficult to ensure either efficiency in distribution or equitable allocation of inputs, particularly if the supply is limited. It is also difficult to abolish subsidies once they are introduced. More carefully devised subsidies are, therefore, necessary. To the extent possible, it is also important to promote competition between private, public and co-operative marketing channels rather than establishing a monopoly of co-operatives if the objective is to reach poor farmers without sacrificing efficiency.

(iv) *Seasonal price differences*

The other usual allegation about the private trade is that farmers sell their surpluses in the immediate post harvest period when prices are low because of: (i) their heavy indebtedness to the village traders and money-lenders, (ii) their need for cash for paying taxes and debts, and (iii) inadequate storage facilities at their disposal. Off-seasonal prices, on the other hand, are said to rise significantly higher than costs of storage and normal profit, allowing traders to make excessive profits.

The evidence cited is once again much less supportive both in Asia and Africa. It indicates that there is considerable variability in the pattern of seasonal price movements of various agricultural produce and that this pattern is usually difficult to predict, leading to considerable risks in storage until the off season. The study of India's grain markets (Lele, 1971a) shows that the profits of traditional private traders when averaged over a number of years are not excessive, as high profits in some years are compensated by low profits (or even losses) in other years. It is because of such seasonal price patterns that transferring the storage function from traders to farmers through formation of producers' marketing co-operatives does not result in farmers earning a significantly higher price, unless there is an overall price policy that reduces risks, and guarantees an incentive price, as pointed out earlier in the discussion of second payments. Also frequently it is not so much the low price received by farmers, as the lack of choice open to them as to when during the course of the season to sell, which has been the unacceptable feature of traditional trade. With the increase in incomes and the consequent improvement in staying power and awareness of markets, the pattern of sales in the immediate

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post-harvest period has already begun to change significantly among the middle-level peasants particularly in the case of food crops. For example, in India the late arrivals of marketings arising from speculative tendencies of farmers have frequently become a problem in making assessments with regard to the probable size of the agricultural production in the recent years.[21] More surpluses are often withheld for sale in the past harvest season when prices are high. Again the Indian experience with cold storage in the eastern states suggests that where storage facilities are introduced to reduce perishability, seasonal fluctuations in potato prices have declined and marketed output has increased considerably. Increasing productivity and incomes, and improving storage possibilities through construction of stores and credit advances to meet post-harvest cash needs are therefore the most effective ways of increasing the bargaining power of the low-income producers. A number of additional steps of the type discussed later in this paper also need to be taken by governments to further improve bargaining power of the farmers. None of these, however, involve a hasty introduction of co-operative marketing organizations or discouragement or abolition of traditional trading channels, as is often the case in many countries.

(v) *Marketing co-operatives*

Experience both in Asia and Africa suggests that there have been substantial disparities in the performance of co-operatives with regard to the export and food crops.[22] Nevertheless promotion of food marketing co-operatives continues to receive enthusiastic support from a very broad range of interests. It is therefore important to understand the reasons for the differences as these indicate that developing marketing co-operatives for subsistence crops is a difficult task and that it must be handled gradually and carefully. Case studies cited in note 21 indicate that it is counterproductive to push co-operative development too rapidly as it usually backfires, frequently making co-operatives the haven of government subsidies and a barometer of inefficiency, in which the more efficient private trade can survive relatively easily. Such co-operative performance also defeats the purpose of augmenting competition among channels of marketing, and of improving welfare and incomes of the subsistence producers.

Because many export crops require further processing, unlike food crops, these often cannot be used in domestic consumption or sold easily in rural markets. A centralized marketing facility is, therefore, relatively easier to organize in the case of such export crops than for most subsistence-related productive activities.

The perishability of many of the subsistence products also makes centralized marketing more difficult as an assured market is necessary for expeditious disposal of the surpluses at incentive prices. However, as the Anand Milk Co-operative illustrates, if such an assured market exists, and if an efficient marketing system is developed, co-operatives dealing with perishables have an even greater potential to be successful than those related to food crops, as private markets are less organized and less competitive in the case of perishables.[23]

Where centralized marketing can be organized it is also easy to integrate provision of credit with marketing, as credit can be recovered relatively easily through proceeds of the marketed output. On the other hand, for some of the reasons discussed in Section 5(a), institutional credit has been much less easy to organize in the case of food crops, leading to considerable scope for competition from moneylenders and private traders.

Crops that require processing provide scope for economies of scale.[24] The value added in the case of such crops is usually also substantial. Co-operatives can therefore be viable as processing entities, even if their marketing activity is poorly organized. Besides in the case of export crops, the price of the final product is usually sufficiently high to reflect the value added. When there is no scope for easy centralization of marketing, and international prices are not high, even cash crop co-operatives flounder because of the inefficiency in their operations.

Most case studies cited in this paper indicate that the inefficiencies arise partly from administrative mismanagement resulting from the poor quality, the inadequate training and the little practical management experience of the personnel usually employed by co-operatives. Often even adequate record keeping is a problem in many co-operatives. Financial abuse and corruption by political elite that often control co-operatives is also observed widely particularly as the management tends to be poor. Co-operatives that deal with subsistence crops and farmers have experienced a greater share of these problems as the emphasis on training and management has been lower than normal. Further, there is both greater scope and greater incentive for quality control in the marketing of export crops as the return is higher. On the other hand, in the case of many food crops, co-operatives are frequently unable to exercise

control on the quality of the produce they purchase, as a result of which losses from purchases of low-grade or wet produce at high prices are at times substantial. In the case of Taya Ajula Farming Group Co-operatives in Madya Pradesh, India, the Government pressured the co-operative into buying ammonia sulfate, even though the co-operative had no use for it. A large quantity of ammonia sulfate had been purchased at a discount and the Government had been unable to sell all of it.[25] Many villages in Tanzania faced a similar situation under the National Maize Programme through Government zealousness in the indiscriminate promotion of fertilizer.

(vi) *Preconditions for an effective marketing system*

A successful marketing strategy requires more than creation of co-operative marketing institutions. A far more broad based and positive role is required of the public sector than currently followed by most governments. Because a large part of the pricing and marketing problem arises from inadequate infrastructure, shortages of production and irregular government pricing policies, investment in roads, storage facilities, technology development and improved market intelligence systems are required. The more essential commodities such as cereals, oil seeds or milk may need much greater government involvement in pricing, distribution and market intelligence than would commodities such as fruits and vegetables. Greater government regulation of marketing practices is also necessary as evidence indicates that standardization of weights and measures, fixation of marketing charges and traders' commissions, open auctions, standard methods of payment and grading and improved market intelligence add considerably to the effectiveness of the traditional marketing systems.[26] The relative emphasis on the various components of the market improvement package will of course vary depending on the stage of development of the country. For instance, in the Indian subcontinent where private trade has always been very active, the emphasis would have to be more on its regulation than on promotion. In many East African countries where private trade has in the past been operated mostly by Asians, promotion of a local trading community that is beginning to emerge would be necessary. There would also be much greater need for infrastructural development in many African countries than in the Asian subcontinent, although the benefit–cost ratio of such investments is generally more favourable in the latter.

For the reasons outlined earlier, development of marketing co-operatives that deal with the subsistence activities of small farmers has to be gradual and combined with assurance of the various prerequisites necessary for their success. Especially in countries where private trade is active and efficient, i.e. in most Asian and West African countries, initially, co-operation may best be confined to relatively short-term activies that are more commensurate with traditional forms of cooperation such as the participation of farmers in: (i) the establishment and use of standard weights and measures by private traders, (ii) dissemination of information on prices prevailing in other producing and consuming centres, and (iii) construction of storage facilities where farmers may wish to store their produce for later sale, particularly if such storage facilities are combined with facilities for advanced credit on a portion of the value of the produce. Such a storage policy would, however, imply sharing of risks as well as benefits. Purchase and sale of surpluses on account of co-operatives may come later, once a more effective pricing system has been formulated, and co-operative managers are trained and gain experience in marketing management and in trading. Few small farmers possess such skills initially. In the absence of such a gradual approach, co-operatives frequently become a marketing alternative in slogan rather than in practice. Where private trade is not as active – as in parts of East Africa – the need to develop full-fledged co-operatives quickly is more strongly felt. However, even in those countries, ideological and racial factors frequently result in much less use being made of the existing traditional marketing systems than would seem justified if the objective is to improve the lot of the small producers.

## 5. AGRICULTURAL CREDIT

### (a) *Factors affecting small-farmer productivity and credit repayment*

Experience indicates that small farmers have greater need for borrowed funds in adopting new innovations than do larger farmers. However, considerable evidence has also accumulated that small farmers have much less access to institutional credit.[27] This applies as much to credit co-operatives as to commercial banks and government finance corporations, although existing evidence is not fully consistent with the premise that productivity on large farms is always higher. Under traditional technology,

where labour input is much more important than capital, small farms often have higher yields per acre than do large farms. On the other hand, once new technology is introduced, productivity differences may frequently shift in favour of large farms. To a considerable extent, the reversal results from differential access to capital and technical know-how, and the mutually reinforcing effect of these two factors on productivity. For instance, the extension services in most countries work largely with middle and large farmers, as a result of which large farmers acquire better knowledge of new management practices.[28] Even if the political and financial considerations that influence credit distribution (discussed later in this section) are not taken into account, because of their greater access to technical know-how large farmers are more able to qualify for institutional credit. Their better technical knowledge also reduces uncertainty in the cultivation of new varieties, whereas the financial staying power and, therefore, their ability to undertake risk is often considerably greater in the case of large farmers.

Lower productivity on small farms should result in a lower repayment rate of credit. Because of their higher propensity to consume, small farmers are also believed to divert credit to consumption far more than large farmers, with a consequent poor ability to repay loans. Evidence across a range of countries is, however, contrary to the view that small farmers are greater defaulters.[29] The author's review of evidence indicates that although diversion of credit is widespread, it is by no means greater in the case of small farmers; only the purposes for which it is diverted are different, with larger farmers using borrowed funds for industrial investments, real-estate enterprises and conspicuous consumption. Often small farmers also repay credit more promptly because of their lesser ability to get away with overdues compared to large farmers who wield substantial political influence.[30] And, of course, the higher repayment rate on small farms frequently reflects the potential to use credit for improving productivity and incomes of such farms, provided that credit is accompanied by a profitable technological package, timely supply of inputs and properly working output markets. Even consumption credit lent to small farmers has elicited a good response when these prerequisites have been met. Given the illustration of favourable performance by small farmers, what explains the unequal distribution of credit? What implications do these explanations have for the role that the co-operative movement can play in benefiting the poor through credit programmes?

### (b) *Factors affecting credit distribution*

The politically dominant role of large farmers in co-operative management and its influence on allocation of benefits mainly to large farmers have been well documented.[31] It is reflected in their preponderant representation on boards of directors, and their frequent overt role in the approval or promotion of credit applications of individuals with whom they have kinship or political affiliations. Case studies of co-operatives listed at the end of this paper indicate consistently that the ability of large farmers to exercise such control is explained by their greater political involvement, higher level of education and greater commercial acumen, resulting in their greater understanding of the management issues and the means of its control. These same case studies show that most small farmers on the other hand frequently cannot even read the credit applications that they have to fill in. They are seen to attend few if any meetings of the co-operative societies. The needs of the more commercial farmers in terms of the types of services they require also tend to be different from those of the subsistence farmers, creating conflicts of interests. There are, however, a number of important financial and economic considerations that reinforce these tendencies towards unequal access to resources.

Because of the small size of individual loans, unit cost of lending to small farmers is greater, particularly as the constraint on the trained manpower to administer credit in most developing countries is usually severe. Credit institutions, whether co-operative or otherwise, therefore have a tendency to minimize demands on administrative manpower by making large loans as often as possible.

Co-operatives usually have little or no control over technology development, market prices and timeliness of input supply, all of which are influenced by government policies outside the co-operative system. The actual repayment rate on small farms is therefore frequently much below the potential, thus increasing the unit cost of recovering credit from small farmers, in addition to the high costs of distribution.

On the other hand, major portions of the funds loanable to credit institutions are usually provided by the central banking organizations and not generated internally. The organizations

expanding credit most rapidly are therefore often the greatest beneficiaries of the supply of loanable funds, although the repayment record is not necessarily better by lending to large farmers.

The nature of the subsidies provided to credit institutions reinforces the large farmer bias. The higher unit cost of making small loans is often the justification for subsidizing institutional credit. However, it is feared that subsidies directly linked to the cost of lending to small farmers may reduce the incentive for credit organizations to minimize their costs of such lending or to improve repayment on small farmer loans. Subsidies are, therefore, provided to support overall budgets of credit organizations, as for instance through interest rate structures. The cheapening of credit that results from such policies leads to an even greater interest among large farmers to control its allocation in their favour, given that institutional credit is already attractive to large farmers because of capital scarcity.[32]

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### (c) *Preconditions for an effective credit system*

Given these various constraints, it is unlikely that co-operative credit organizations would lend to lower-income, small farmers unless one or several of the factors listed later are operative. For instance, if there are positive financial incentives, through selective subsidies geared directly to costs of lending to small farmers, there would be a greater incentive to make small loans. The Kenyan co-operative movement has requested precisely such subsidies from Government before it would move extensively to lend to low-income farmers in the Western and Myanza provinces. Such incentives may even be combined with punitive measures if credit institutions do not allocate a certain share of their resources to small farmers. The Indian Government has followed this policy since the nationalization of banks. However, these steps require a national commitment to reaching the poor and involve policy decisions that lie outside the scope of co-operatives. They also go far beyond the pragmatic European concept of co-operation based on self-help and mutual benefit, discussed earlier. Nor are such measures administratively easy to implement, as target groups have to be carefully identified and benefits to them have to be monitored on a routine basis if there are to be no abuses of the system for the benefit of the rich. Both these tasks are highly demanding of administrative manpower and political goodwill even if commitment exists at the top. Besides, if selective subsidies are not combined with other related steps, such as technology development and price incentives, small farmers may not borrow credit. Or even if they borrow credit, credit programmes may become yet another, though rather inefficient, way of subsidizing the consumption of the poor as investments would not yield much return. Subsidies are also difficult to withdraw politically, particularly if they have not been effective in improving incomes.

Change in the land tenure structures, which reduces disparities among farm sizes, as occurred in China and Cuba and earlier in Taiwan and Japan, would in itself encourage a more broadbased distribution of services as it would reduce the differences in the costs of lending among farms, as well as reducing the status and other benefits that go with assisting large farmers in situations of inequalities. Of course the smaller the initial disparities in farm sizes, the smaller are the cost effectiveness and the various social and political rewards involved in reaching large farmers, and, therefore, the lesser would be the need for a land reform. In any case a policy of land redistribution also lies beyond the scope of the co-operative movement.

Credit institutions also have to reduce costs of lending to small farmers by simplifying lending procedures. Co-operative institutions are not only geared to individual gain, but also oriented to highly individualistic principles of creditworthiness and ability to repay, albeit paradoxically. The requirements of downpayment and proof of an individual's land rights to ownership or to tenancy which are used to ensure repayment are at best administratively demanding and, at worst, impossible for many small farmers and tenants to meet, particularly as these requirements seem to be less important in determining farmers' motivation to repay than are factors such as political power to get away without payment and profitability of investment.

As the experience of the Wolamo Agricultural Development Unit in Ethiopia indicated, this is one of the many reasons why group responsibility for screening applications and ensuring repayment has at times been considered a better alternative than individual criteria of creditworthiness.[33] If properly developed, group lending can permit savings in credit administration, while at the same time providing scope for active grassroot participation and delegation of responsibility to low-income farmers. The extent to which the group approach

is successful would, however, depend on the social cohesion and economic homogeneity of the groups. Co-operatives with open membership do not enjoy these advantages. And yet open-membership co-operatives constitute an important element in the co-operative movement for a variety of reasons. These include the top-down nature of the movement and the consequent tendency of governments to form organizations without much regard to factors that are likely to influence a group's motivation to co-operate, the emphasis both of governments and donors on quantitative growth of co-operatives rather than on their qualitative performance, the political pressure against targeting programmes towards the poor and the administrative requirements of such an approach.[34] To ensure that these various limitations of the conventional co-operatives are not repeated under the group approach, balance between two conflicting considerations is necessary. Groups have to be small enough for them to be cohesive and to work actively in exercising the necessary mutual pressure to make the organizations viable. On the other hand they have to be large enough to take advantage of the cost reductions that occur from scale.

It is not easy to form effective groups as the traditional forms of mutual exchange as reflected in working on each other's fields, constructing roads and health clinics are different in character than those needed to operate developmental institutions.[35] The former involve co-operation over relatively brief time spurts, require little financial management and are usually geared to improving welfare or reducing drudgery. The latter, on the other hand, are directed to augmenting productivity and incomes over the long run. Therefore even if membership in groups is based on traditional patterns of participation, entirely new concepts of financial management and technical and administrative effectiveness have to be imparted to villagers if the group approach is to be successful.

Traditional forms of mutual exchange may also be based on more hierarchical relationships than is usually recognized. Consequently even if there is considerable apparent social cohesion in a traditional society, interventions made to facilitate development may frequently exacerbate traditional patterns of obligations, exchanges and behaviour in a manner that results in greater inequity and exploitation by the élite.[36] This is illustrated by the fact that in African countries formation of credit groups involving tribal chiefs has often resulted in the credit going largely to the various members of the chiefs' clans, and relatively little to small farmers.

Where socio-economic differentiation in traditional societies is acute as in parts of Ethiopia prior to the political change in 1974, or in parts of Latin America, group approach is often not even feasible, as it is viewed as a threat to the local socio-economic structure. Even if groups are formed with external assistance, experience both in Latin America and Africa shows that they do not work effectively or last long.[37] For the group approach to be successful in such situations, redistribution of socio-political power often has to be the first step, with substantial emphasis on development of technology, physical infrastructure, effective pricing and marketing policies and establishment of efficient management systems as the next steps.

It is also important to recognize that even if the group approach is effective in reducing equity in one sense, it implies inequity in a different form. For instance, if some members of the group are not good farm managers, obtain poor crops and, therefore, cannot repay their loans, the more enterprising, better managers are disqualified for further assistance. This is one of the reasons for the general lack of spontaneity in the formation of groups.[38]

Difficulties are also encountered in the continuation of a group approach once differentiation begins to occur, as the needs of more commercial farmers begin to differ from those of the subsistence farmers, resulting in conflicts in the use of resources over time.[39]

For these various reasons external initiative is necessary to promote grassroot participation, a point emphasized most strongly by the management of the Anand Dairy Co-operative. If paternalism is combined with an understanding of the various factors that are essential to achieve effective local participation, and if institutions are protected from local political influences of the type discussed earlier, viable grassroot institutions may be developed over time to benefit the poor. However, this is a slow process. Nor is its replicability ensured on a large scale as the necessary preconditions frequently vary. One of the weaknesses of the co-operative movement has been the difficulty in reproducing qualified leadership on a large scale for this very demanding task, as a result of which even after several years of operations there is usually little element of self-help either in administrative or financial terms in most co-operative organizations. And even though co-operatives are frequently no more than another governmental bureaucracy, their operations are

substantially influenced by the political interests. A more central, autonomous agency may on the other hand be free of such political influences, if there is adequate national commitment to reaching the poor, although it would not necessarily be endowed with better leadership or more effective management. Unlike the co-operative movement, such an agency may also be sufficiently large to have an integrated approach with respect to the related constraints faced by small farmers, including land availability, technology development, credit and input supply and pricing policies. To the extent possible, the field operations of such an agency may be supported by a highly flexible group approach that is geared to the specific socio-economic and technical needs and potentials of the particular groups. It would be desirable not to formalize these groups into co-operatives until they have the ability to tackle problems of lower-income groups effectively.

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## 6. PRODUCTION CO-OPERATIVES

### (a) *Factors influencing promotion of production co-operatives*

Agricultural marketing or credit organizations directly benefit only those who cultivate land and have a marketed surplus. Their benefits to the landless are marginal, only to the extent that provision of services to the cultivating classes leads to increases in productivity and employment of the landless. Production co-operatives are, on the other hand, frequently associated with allocation of land to the landless through reclamation or settlement schemes or involving appropriations from large landowners in the course of a land reform frequently to maximize the use of existing physical infrastructure that is geared to large-scale farming. There are also situations in which production co-operatives are introduced following land consolidation and related investments in land development, and in areas of communal landownership in which cultivators are persuaded to move into group farms.[40] Although ideological concerns for equity and grassroot participation frequently lead to promotion of production co-operatives there are also a number of pragmatic considerations that explain the attraction of production co-operatives to policy-makers, including savings arising from the delivery of services to groups rather than to individual farm families, more rapid dissemination of new agricultural technologies through group interaction, exploitation of economies in the use of lumpy technology such as irrigation facilities or farm mechanization, more effective use of underemployed labour, increased production and greater social control over marketed output.

### (b) *Factors affecting performance of production co-operatives*

Not all these objectives are always mutually consistent. For instance, agricultural mechanization and increase in the use of underemployed labour can be achieved simultaneously only if labour displacement in individual production tasks is more than compensated by the additional employment that may be generated either through increased yields of the various crops grown or through additional cropping that may be facilitated by mechanization.[41] Although mechanization frequently leads to increased labour use on private holdings, on group farms it is often labour-displacing because of poorer management and less intensive resource use. Participation in decision-making is also not always consistent with the use of lumpy technology as mechanized or irrigated farming may often be centralized in management.[42]

As small-scale, individually cultivated farms can be highly productive, as illustrated in Japan and Taiwan, overall saving of resources through co-operative farming is possible only to the extent that savings arising from group delivery of services are not accompanied by a reduction in the efficiency of the resources used in group production. With less efficient production, the objective of generating greater marketed surpluses may also not be realized, although that of equity may be achieved.

The extent to which productivity on co-operative farms compares favourably with that on individual holdings is a function of incentives, management efficiency and availability of profitable technology. Arriving at an effective incentive system is almost always a problem on co-operative farms as the motivation to provide the labour necessary for high productivity requires that wage payments be commensurate with the quality and quantity of the labour input. On the other hand, emphasis on reward to individual enterprise when carried to an extreme can create income disparities even if none initially existed, thus defeating the equity objective. Mainland China seems to be one of the few countries where an adequate work point system appears to have evolved after a prolonged period of trial and error. In China a

combination of equity and incentive considerations seem to have led to minimum wage payments along with an additional share in the surplus according to the quantity and quality of an individual's labour contribution. The apparent substantial flow of labour into communal farms in China seems to be encouraged by a combination of three additional factors: use of political means oriented to meeting national objectives to mobilize labour, the associated social recognition enjoyed by individual communes, and the decentralization in decision-making that has encouraged participation of peasants in working out work-point systems suited to their own specific communal needs. There also seems to be a greater willingness in China than is generally acknowledged to accept intercommunal and interregional disparities so as to retain surpluses with producers and thus to provide incentives.[43] There thus appears to be a greater tendency to transfer resources into the agricultural sector through input and output pricing and distribution than is apparent in other developing countries. Although the lack of data on China makes it difficult to make more meaningful comparisons, most other countries seem to have failed in providing an effective combination of such prerequisities. In the absence of both economic and socio-political rewards, constraints on individuals to earn their income potential is one of the major factors why in most developing countries, among all types of co-operatives, production co-operatives usually receive the least voluntary support from farmers.[44] This reluctance is usually also reinforced by the fact that in most developing countries co-operative farms operate side by side with private farms, in which situation the choice of individual land cultivation seems more attractive.

In organizing production co-operatives, if land and other productive assets are individually held and if asset ownership among members is unequal either in quality or quantity, this poses additional problems in developing an incentive system and in management and control of the co-operative. Pooling of different types of individual holdings has various advantages including spreading the risks of crop failures and enabling production of a greater range of crops. Determining returns to the various assets and their different shares owned by members, however, poses problems leading to conflicts between the objectives of equity and incentives. Differential ownership of assets also creates management problems and problems related to broadening participation in decision-making, as the members who own most of the capital usually attempt to acquire political control, whereas those who mainly contribute labour can be reduced to a role of no more than paid labourers. In such situations, the day to day management of group farms, involving decisions as what to produce, when and what steps are essential to ensure high productivity, is either neglected or gets relegated to external government-appointed managers with little member participation. It is these sets of concerns which have discouraged smallholders in Tanzania from joining co-operative farming in Ujamaa villages.[45]

If group farms involve landless labourers, or low-income subsistence farmers, their receptivity to the concept of co-operative farming may be greater because of the access to land and other welfare services that such participation often promises. On the other hand, unlike the more successful individual landholders, landless labourers and subsistence farmers using traditional technology usually bring few managerial skills to group farms.[46]

The degree of government assistance also affects efficiency of resource use, choice of technology and effectiveness of management. Group farms often tend to overcapitalize both in comparison with similar privately-owned farms and from the point of view of efficient resource use. Much of the capital is often provided from outside, whereas the incentive to allocate an adequate share of the surplus to investment is frequently limited both because of low productivity of group farms and because of the motivation to acquire the maximum share of the surplus for immediate personal consumption. A high degree of capitalization frequently becomes a substitute for good management or improved varieties of crops that respond well to fertilizers.

Despite the substantial injection of external resources, the repayments of credit or contributions to marketed surpluses may often be poorer on group farms, particularly if the production activities consist largely of traditional subsistence crops, involving labour-intensive techniques, and decentralized management, in comparison with situations of high-value cash crops with demonstrated profitable technology, using modern methods of cultivation and centralized management.

## 7. SUMMARY AND IMPLICATIONS FOR FUTURE ROLE OF CO-OPERATIVES

Despite differences in the stages of development, evidence from Asia, Africa and Latin

America indicates that the limitations of co-operatives in reaching the poor arise from a rather consistent set of factors. This means that the principles of co-operative development have to be equally consistent across the developing world, although the relative importance of individual factors would depend on the specific circumstances of individual countries. For instance, for the reasons discussed in this paper, the principle of differential unit cost of providing services to the poor in comparison with the rich applies universally. The greater the disparities in the distribution of income and wealth, the greater are these differences in costs. The extent to which co-operatives can benefit the poor, without a redistribution of assets, therefore depends on the extent to which these greater costs are met by direct subsidies for this purpose, assuming that political forces do not come in the way of reaching the poor. Also for the reasons discussed in this paper, the principle applies universally that generalized subsidies geared to reaching all social classes including the poor, by and large reinforce the allocation of resources away from the poor. However, equally similarly where income inequalities are not acute, targeting programmes towards the poor is also politically difficult and administratively demanding.

The cost of reaching the poor is minimized and the conflict between growth and equity is resolved, only to the extent that the resources directed to the programmes for the poor are used effectively and increase their productivity. Further, the effectiveness of the resource use depends on the various internal and external factors that affect the performance of the co-operative movement. Co-operatives are frequently based on an inadequate knowledge both of the actual constraints faced by the poor and of the steps needed to alleviate these constraints. As a result, there is rarely a critical examination as to whether co-operatives are the most appropriate institutions to tackle these constraints and, if so, the prerequisites necessary for their success. Leadership, management, experience and technical know-how – all of which are crucial for co-operative organizations to be effective – receive relatively little emphasis in co-operative development, in comparison with a rather amorphous and misdirected concept of existing grassroot organizations and of their potential for promoting participation and democracy.

There is often an inadequate appreciation of the external factors which have a profound impact on the extent to which institutions – whether in the private, public or the co-operative sector – can function effectively, particularly in reaching the poor. These include government policies with regard to agricultural pricing, input distribution, technology, infrastructure development and regulatory functions. The lack of prerequisites in these various areas is combined with an inadequate understanding of the way emphasis on decentralization and grassroot participation can defeat the equity objective by vesting power in the hands of the rural political elite. The greater the inequalities, the greater are these conflicts. In such situations it would appear that a more centralized, paternalistic approach may be more effective than traditional co-operatives, provided that it is more sharply focused on identifying the internal and the external constraints of the type listed earlier as happened in the early stages of Taiwanese development. In following this approach, the emphasis would have to be on small groups, relatively simple forms of co-operative activities and particularly on substantial training of the rural people to actually carry out planning and implementation of programmes, with the necessary external support to make these programmes productive. In this context the very high literacy rate in Taiwan in the early stages of development, compared to most current developing countries, may have been a particularly important contribution to co-operative development.

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## NOTES

1. See Michael Lipton (1977) for an analysis of the urban bias as it perpetuates poverty in developing countries.

2. For a discussion of the relationship between decentralization and subsidies in the Ujamaa policy in Tanzania see Lele (1975), Chap. 9, pp. 151–161. For some case studies outlining the dependence of co-operatives on Government subsidies see Government of India (1976), especially the discussion on the Keselkelti Group Co-operative in Bombay and the Taya Akule Farming Group Co-operative in Madya Pradesh. Also see Redcliff (1976) for an analysis of subsidies in Ecuador.

3. See World Bank Sector Policy Paper (1975) for a discussion of absolute and relative poverty as well as for data on poverty levels in selected countries. Also see Chenery *et al.* (1975) for further discussion on poverty and income distribution.

4. In Andhra Pradesh and Tamil Nadu states in India,

for instance, there have been several incidences of violence, as well as importation of migrant labour, and mechanization of farming in reaction to increased wage demands by local landless labouring communities.

5. See Owen (1963).

6. See Lele (1975a), Chap. 9; Cliffe and Saul (1972) and Hyden (1971) for an analysis of the nature of the class conflict in the context of decentralized development in Tanzania.

7. For further discussion of the first-round effect of technological change on income distribution, and subsequent effects of income distribution on patterns of effective demand, the structure of manufacturing, and further on employment and income distribution see Mellor and Lele (1973).

8. See Munker (1976) for an analysis of the European concept of co-operation and its implications towards co-operatives in developing countries.

9. For examples of the effects of various constraints on co-operative development see Apthorpe (1970, 1972), especially the former, and the discussion of two cases of cotton co-operatives in Kenya, pp. 157–220.

10. For detailed documentation of many of the arguments in this section see Lele (1975a, b) and USAID (1976).

11. See Lele (1975a, b) for a review of the literature.

12. See note 11.

13. See Lele (1971a, 1975a).

14. See O'kereke in Widstrand (1970), pp. 153–177. Also see Lele (1971b) for a discussion of inefficiencies in the co-operative modern rice mill in India.

15. See Lele (1975a), Chap. 6, for a discussion of these issues.

16. See Lele (1975a), Chaps 5 and 6.

17. See Lele (1975a). Red-tape and delays in obtaining loans are common problems encountered in co-operative credit societies. This is often due to unqualified management or complicated lending procedures. See Dao (1975) and Ahmed (1974). For an analysis of the reasons for underutilization of co-operative credit by small farmers see Williams (n.d.).

18. For further discussion see Lele (1975a), Chap. 5.

19. For further discussion see Lele (1975b).

20. This does not mean, however, that the pricing of inputs is easier than that of agricultural produce as frequently complex questions related to levels and timing of subsidies are involved. See Lele (1975a), Chap. 4, for a discussion of issues related to input subsidies.

21. For a discussion of the distribution of technological benefits during the Green Revolution in India see Nicholson (1976); Lele (1975a), Chaps 2–4, for a discussion of the factors that influence dissemination of technology among different classes of farmers in Africa.

22. See Lele (1975b) for documentation.

23. For case studies of the performance of marketing co-operatives see Apthorpe (1970), Baviskar (n.d.), Cooperative League of the United States (1969), Inayatullah (1972), Kahn (1974), Pakistan Academy (1966), UNRISD (1974) and Widstrand (1970).

24. See World Bank *Report* (1977).

25. See Government of India (1976).

26. For further discussion see Lele (1971a).

27. For detailed documentation of many of the arguments in this section see Lele (1974).

28. See Lele (1975a), Chap. 4.

29. See Lele (1974).

30. See Lele (1974).

31. For the nature of the influence exercised by large farmers in co-operative organizations see Apthorpe (1970), Borda (1969), Inayatullah (1970) and UNRISD (1974).

32. See Ahmed (1974), pp. 28–30, for a discussion of the way local élites influence allocation of credit in co-operatives.

33. See Lele (1975a), Chap. 5.

34. For a discussion of the problems arising from quantitative rather than qualitative growth see Hyden (1970, 1971) and Widstrand (1970), and especially Hyden and McAusten, pp. 61–120. Also Lele (1975a), Chaps 4 and 8.

35. See Migot Adholla in Widstrand (1970), pp. 17–37, for an analysis of the viability of traditional co-operation and co-operative organizations in modern co-operatives. Also see Apthorpe (1970) for an analysis of old and new co-operatives in Bassa Region, Cameroon.

36. See Hyden in Widstrand (1970) pp. 61–81, for an analysis of the effect of local culture on the implementation of co-operatives.

37. See Borda (1969) for an analysis of the interclass conflicts and their effects on co-operative development in Latin America. Also see Apthorpe (1970) for examples of the effects of economic, political and ideological pressures on co-operatives in Africa.

38. The conflict between the middle-class peasants

and poor farmers was a major problem in China in the initial period subsequent to the revolution. To counter these conflicts the government specified the enterprises and established a system of rewards into which the interests of the more prosperous peasants could be channelled. See Shue (1976) for an anlaysis of this system.

39. Small farmers are unable to utilize modern farm equipment or processing plants to their advantage. Therefore, they try to prevent the expenditure of valuable resources on such items. On the other hand, larger farmers can benefit from such facilities and thus have an interest in diversification of co-operative activities in these directions. See Borda (1969) pp. 30–34; and Apthorpe (1970), pp. 207–360.

40. For an analysis of different types of production co-operatives see Dorner (1977).

41. For a discussion of mechanization and its implications for employment see Lele (1975a), Chap. 3.

42. For a comparative analysis of the organizational aspects of co-operatives with different degrees of mechanization see Apthorpe (1970), pp. 287–360.

43. For a discussion on the Chinese co-operative system see Stavis (1975a).

44. See McAusten in Widstrand (1970), pp. 81–120, for an interesting analysis of co-operative law and attempts by co-operative organizations to satisfy the peasants' desire for land while at the same time aiming to exploit the economies of scale from pooling of land.

45. For further discussion see Lele (1975a), Chap. 9.

46. For consequences of co-operatives formed around landless labourers with little technical know-how see Government of India (1976) especially the Keselketti Group Co-operative and the Vihad Rehabilitation Collective Farming Colony. Also see Cooperative League of the United States (1969).

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# Income Distribution, Basic Needs and Trade-Offs with Growth: The Case of Semi-Industrialized Latin American Countries

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**Summary.** – This paper addresses income distribution issues and policy options to eliminate extreme poverty in a particular typology of middle-income semi-industrialized developing countries of Latin America. The countries included in the typology are characterized by a relatively high *per capita* income (above US$700/yr in 1977), a relatively high degree of industrialization (industry representing over 30% of GNP), a rather large size both in population and area, and relatively well endowed resources in agriculture. A distinctive feature is a strong inequality in the distribution of income and wealth relative to other countries of similar levels of *per capita* income. The countries included are Brazil, Colombia, Ecuador, Mexico and Peru, representing two-thirds of the population of that region.

## 1. POVERTY AND INEQUALITY

This group of semi-industrialized developing countries has experienced an impressive growth during the last decades, GNP *per capita* reaching 3.8% per annum. Mean *per capita* income reached $1168 in 1977 (Table 1), mean life expectancy reached 60 yr and mean calorie consumption has become equal to the *per capita* calorie requirements.

What is striking is the coexistence of these high means with an extremely unequal distribution of these welfare indicators across the population, i.e. the problem of inequality. In spite of high mean levels of *per capita* income, almost 28% of the population suffers from a caloric deficit. Because poorer families have more children, 36% of all children suffer these caloric deficits (Table 2).

The same can be found for welfare indicators other than income. In Brazil, differences in life expectancy of 21 yr are found between the poorest groups in the rural Northeast and the richest groups in urban areas. In Mexico, infant mortality per 1000 live births ranges between 39.2 for the richest states and 105.9 for the poorest. In Ecuador it ranges from 45.5 to 112.1.

Most surveys indicate that when households are classified by *per capita* household income, most of the poorest 20–40% of families live in rural areas. The share of rural households in the poverty group ranges from 58% for Colombia to 82.7% for Peru. Brazil's figure falls between 64.3 and 72.9%, whereas the Mexico figure is approx. 75%. In several countries, rural poverty is associated with particular regions; in the case of Brazil half the families in the poverty group are located in the rural Northeast, and in the case of Peru, in the Mancha India.

These figures exaggerate the participation of rural households because the reported income figures must be corrected by different price levels, particularly those of food. In the

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Table 1. Per capita *income and growth rates*

| Country | Population 1977 (millions) | *Per capita* income, 1977 (dollars) | Growth rates (1960–1977) GNP (%) | Population (%) | GNP *per capita* (%) |
|---|---|---|---|---|---|
| Brazil | 116.1 | 1360 | 7.8 | 2.9 | 4.9 |
| Colombia | 24.6 | 720 | 5.5 | 2.8 | 2.7 |
| Ecuador | 7.3 | 790 | 6.1 | 3.0 | 3.1 |
| Mexico | 63.3 | 1120 | 6.1 | 3.3 | 2.8 |
| Peru | 16.4 | 840 | 5.2 | 2.9 | 2.3 |
| Average (weighted) | | 1168 | 6.8 | 3.0 | 3.8 |

Source: *World Development Report* II (IBRD, 1979).

Table 2. *Percentage of individuals with caloric deficit*, 1976

| Country | Population | Children | Aggregate income gap (%) |
|---|---|---|---|
| Brazil | 24.0 | 32.4 | 2.2 |
| Mexico | 24.0 | 32.4 | 2.3 |
| Ecuador | 40.0 | 48.8 | 8.9 |
| Peru | 35.0 | 42.7 | 4.1 |
| Colombia | 26.5 | 35.8 | 3.6 |
| Average | 27.75 | 36.0 | 3.0 |

Source: M. Selowsky, 'Balancing trickle down and basic needs strategies', World Bank Working Paper No. 335 (June 1979).

case of Peru, such adjustments lowered the percentage of rural households in the poverty group to 59%.[1] The use of differential poverty lines provided by ECLA for urban and rural areas show that approx. 60% of households in the poverty group are rural.[2]

How are these households linked to the urban and rural economies? What are their sources of income? These are important questions for identifying points of policy intervention. Ideally, one would like to classify rural households according to the relative importance of their share of income from ownership of land, sharecropping and the provision of wage labour to other farmers. Because the typical population census or household survey from which these poverty groups are constructed usually does not provide this data, sectoral (i.e. agricultural census or urban employment) surveys must be used to derive this information.

Scattered evidence tends to show that the mixture of sources of earnings for the rural poor varies considerably in the countries explored. In Peru, 80% of the rural poor are subsistence farmers of distinct ethnic background. 'Subsistence farmers are mostly Indian, Quechua or Aymara speaking, and in 1961 about 70% were illiterate. Their principal source of livelihood was on the average about 0.9 ha of Sierra cropland, three heads of cattle, and some other livestock. Most earned some cash income by seasonal labor on larger farms or occasional sales of livestock products.'[3] In Colombia, approximately half the rural households in poverty are small producers, the rest landless labour. Nevertheless, even small producers received at least two-thirds of their earnings as wage labour in larger farms.[4]

In contrast to Peru, where most rural poor are subsistence farmers, the evidence for Brazil shows that most of the poor are landless labour. According to the SUDENE–IBRD survey in Northeast Brazil, only 1.7 million of the 6 million rural labour force (heads of households plus working family members of landowners) own land. Of this 6 million, 'about three million have no access to land, and subsist on temporary employment or scrounge out a living on lands so poor or remote that

they were not captured by any of the censuses, cadastral survey or the SUDENE–IBRD survey. These three million and their families constitute the hard core of poverty in the Northeast. Most landowners (even if they own only two or three hectares of poor land), sharecroppers, renters and permanent workers, realize real incomes at or above the absolute poverty line, but the remaining persons presumably do not, and this situation is easily traceable to their lack of access to land.'[5]

This evidence shows that rural poverty cannot be characterized by a single, simple occupational classification. Small farmers do not seem to represent the core of rural poverty, as is usually believed. Landless labour is at least equally represented in the poverty group, and wage earnings represent an important component of income, even in the case of subsistence farmers. This has important policy implications, as will be seen later.

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Two patterns seem to emerge from the data on the urban poor: most poor are located in non-metropolitan areas, particularly in small towns; about half of them are associated with commerce and the service sector. Depending on the country, between half and two-thirds of heads of households in the poor families are salaried employees, the rest self-employed.

There is no single relationship between unemployment status and households in poverty. Open unemployment does not seem to characterize the households in the poverty group. A recent study at ECLA shows that most heads of households in the poverty group are employed, although a large percentage of them are underemployed, working fewer than 39 hr a week, and are willing to work additional hours.[6]

The evidence indicates that relative income inequality has, at best, remained constant over these long periods of sustained economic growth. Although the fraction of people in poverty has declined, the force of population growth has resulted in a constant *absolute* number of people in poverty. In Latin America, 100 million people live and will remain in absolute poverty during the next two decades. What is of interest is that despite a constant number of poor, the economic capability of solving the problem of poverty has increased substantially.

Let us define as the poverty line the *per capita* income at which families purchase an amount of food yielding the required amount of calories. Therefore, we can define as the aggregate income gap the fraction of GNP that, if transferred to households below that poverty line, would lift these families to that income line. This income gap amounted to 8% in 1960, 4.5% in 1970 and 3.0% in 1976 (see Table 2).[7]

The above figures clearly show that in these countries poverty is, and will increasingly be, a purely distributive problem rather than the result of a lack of aggregate resources. Eliminating extreme poverty while maintaining a high growth rate should be feasible. It is the option explored in this paper.

## 2. AREAS OF POLICY INTERVENTION

Areas of intervention for poverty alleviation are grouped here into three categories. The first includes the elimination of distortions that are adverse to a stronger trickle-down effect of growth; its objective is to increase the employment content of growth. The second area refers to investment policies to increase the endowment of human and physical capital of the poor. Here we are only interested in high-yielding investments, namely, those that are good for the poor but also for the growth rate. Both sets of policies have two features. First, they increase the welfare of the poor by increasing their earning capacity. Second, they do not impose a trade-off between distribution and growth or efficiency. On the contrary, they can benefit both equity and growth.

The third area is 'basic needs'; poverty alleviation must also be measured by welfare indicators other than income. Increases in health status, life expectancy and civic participation depend on the consumption of goods and services like food, health, housing and minimum education. Analytically, it is convenient to separate this area from the second area of intervention: first, they might not represent a 'good' investment and, second, their consumption might not rapidly respond to the increase in the income of poor families; in other words, the first and second options do not automatically guarantee the 'basic-needs' objective of poverty alleviation.

### (a) *Policies without trade-offs: eliminating distortions that are adverse to both employment and growth*

(i) This section reviews policies to eliminate those distortions that not only have, by definition, a negative effect on output, but also adversely affect employment. Of special concern is the employment generation effect of GNP growth, because it is the basic mechanism by which economic growth trickles down to the poverty groups.

Although some distortions are the result of historical forces unrelated to public policy, most have been policy-induced and, ironically, were initially conceived to improve income distribution and employment growth.[8] *The central point here is that the distortions introduced were not the result of the objective* per se *but of the specific policy instruments selected to achieve it*. Thus, the trade-off between these objectives and economic efficiency was the outcome of choosing the wrong instruments rather than an inherent incompatibility between them.

Why were these instruments chosen in the first place? Why were they not replaced by instruments capable of achieving the desired redistributive effects without efficiency losses? The answer is fiscal expediency. The trade-off between employment and distributive objectives, on the one hand, and economic efficiency on the other, resulted from having used fiscally cheap instruments. The cheaper the instrument, the higher the inefficiency generated in the process of achieving a redistributive goal. The main thrust of this section is to show that, today, these countries *can afford 'expensive' policy instruments and, therefore, avoid such trade-offs*.

Two sets of distortions that have adversely affected the employment generation effect of growth are explored: first, those that have distorted the composition of output either by trade policies or by internal price policies; and second, those that have increased the relative cost of labour over and above the one corresponding to the relative abundance of labour in the economy.

(ii) Trade restrictions provide a different premium to the export sector (when they generate one dollar's worth of exports) than to the import-competing sector (when they substitute one dollar's worth of imports). The distortion is defined by the end result of the policy: the import-substituting sector expands relative to the export sector and ends up by using more resources per dollar substituted than those used by the export sector per dollar generated through exports. If import restrictions are concentrated in particular import-competing industries (those requiring higher protection) the import-competing sectors without (or with small) protection also tend to be discriminated against.

Agriculture, either through its exports or its import-competing activities without protection, received most of the negative effects of such policies. To the extent that its labour-intensity is greater than that of the highly protected industrial activities, the net effect on global employment is negative.

On several occasions employment creation was the objective of tariff protection policies to the industrial sector. The question arises why government chose such policies. One explanation is that the positive and negative effects on employment resulting from industrial protection are not symmetric in terms of timing or visibility. New industrial activities emerge quickly when they are the result of tariff barriers; the barrier is simply the result of negotiations with domestic investors or multinational enterprises, i.e. the new investment has been 'latent'. The positive effects on employment are immediate, highly visible, and concentrated in urban areas. Urban labour usually has a stronger political militancy than rural labour. The negative effects of such policies usually occur over the long run and are less visible: the mechanism is the exchange rate, which tends to increase less than it would otherwise have, and the effect is spread across a large number of productive units and regions (it is less visible from a political point of view).

Trade restrictions adversely affecting the agricultural sector have also been undertaken to keep consumer food prices below world prices. When this is achieved by food import subsidies or prohibitions on food exports, prices to domestic producers go down below world prices. A policy that lowers consumer prices without discriminating against domestic producers involves a subsidy on total consumption, independent of the source of supply. Obviously, this entails a larger fiscal burden than that of alternative instruments.

Unless consumption subsidies are used, policies to keep the price of food down will discriminate against agriculture. The cheaper (fiscally) the instrument used, the less successful it is in reaching the objective without adversely affecting agricultural output and employment.

(iii) Most countries place ceilings on nominal interest rates that, under inflation, yield low or negative real rates and strong excess demands for credit. Thus, credit becomes allocated to pressure groups and to large enterprises where risk is minimal (interest rate differentials are not allowed legally so as to compensate for differential risks). Large enterprises in the industrial sector receiving that credit are perhaps the less labour-intensive activities in the economy.

Undervalued exchange rates and imports of capital goods without import duties are further sources of a cheap use of capital, as are tax credits and tax exemptions for investing in 'backward regions'.

(iv) Minimum wage laws, social security legislation, and laws governing the stability of employment have been typical interventions to increase the real income of labour.[9] Such policies have been enforced in particular sectors of the economy, in registered enterprises and particularly in the urban economy. For some labour skills, especially the lower ones, this legislation has become binding and thereby increased their real wages. To the extent that the demand for labour has some price elasticity, this increase has been achieved at the expense of a lower employment in these sectors.

From a political point of view, the room for manoeuver in this field is limited. Of importance is to avoid adverse employment effects as governments extend wage legislation in the future to larger sectors of the economy, such as agriculture and the informal urban sector, particularly services. The issue is how to increase the coverage of these benefits without substantially increasing the cost of labour to these other sectors.

Present minimum wage legislation and social security contributions cover only a small fraction of the labour force, i.e. that in the modern urban sector. Because this sector uses more skilled labour and is subject to more labour union pressures, only a fraction of their employment is bound by the minimum wage law (most workers earn a higher wage); the basic effect of such legislation is to increase the cost of labour through social security legislation, which sets a percentage contribution as a fraction of the wage. Extending legislation to more traditional sectors, such as agriculture and the informal urban sector, implies reaching activities of higher labour-intensity, higher factor substitution, and employing labour of lower skills. Labour not covered by legislation has the lowest wages and incomes; only 8.5% of workers covered by the social security system belong to the poorest quintile of households in the case of Colombia.

Table 3. *Social security contributions as a per cent of the wage*, 1970 (%)

| Country | Range |
|---|---|
| Brazil | 20.7–21.1 |
| Colombia | 10.8–18.3 |
| Ecuador | 13.5–14.5 |
| Mexico | 15.2–20.8 |
| Peru | 9.5–13.0 |

Source: OAS, *Guidelines for Achieving Maximum Employment and Growth in Latin America* (1973).

The employment effects of extending labour legislation, *minimum wages coupled with legal social security contributions by employers*, can be significantly more important than the effects of that legislation in the present. Minimum wages will increasingly become binding and therefore cover a much larger fraction of the labour force; the joint effect of both minimum wage plus social security will involve a more important increase in the cost of labour than presently exists. If demand elasticities are higher in these new sectors, because of higher labour-intensity and higher factor substitution, the potential negative employment effects are reinforced.

Table 3 shows some orders of magnitude by which social security legislation increases the cost of labour. In some countries it reaches 20% of the wage. If the price elasticity of demand for the output as well as the elasticity of factor substitution is 1 and the share of labour is 0.5, an increase of 20% in the cost of labour will diminish employment in those activities also by 20%.

To avoid such increases in the cost of labour, minimum wage laws should be complemented by subsidies (or tax exemptions) on the use of labour, and social security financed by the central budget instead of by the employer. This is well known; the issue is selectivity so as to make this policy fiscally feasible.

One solution is to use these instruments at the margin and in sectors where labour demands are price-elastic. Subsidies could be given on the basis of additional employment, relative to a base year or relative to a fraction (i.e. 0.90) of the employment over, say, the last 2 yr. The same would apply to social security contributions; employers would be exempt only for additional employment, the contribution to be financed by the central budget. Sectors with high labour-intensity and high capital–labour substitution such as certain activities in agriculture, construction and commerce are likely candidates for these policies.

The notion of policies at the margin can also be applied to other types of legislation. Laws imposing high penalties on the dismissal of workers, for example, have become a typical feature of wage legislation, even more so than in developed countries. The result is that the hiring of labour has become a capital investment whose cost is governed by law. These laws could be replaced by unemployment insurance schemes financed by the public budget, providing unemployment payments that gradually decline over time and only last for a limited period.

(v) In most of these countries, wage levels are strongly associated with the degree of 'modernity' of the sector of employment and with the size of enterprises. Labour market segmentation, the extent to which labour of equal skills receive very different salaries, is also associated with these characteristics. The empirical evidence shows that such segmentation not only has not diminished, but has perhaps increased over time. These wage differentials are partly explained by the differential enforcement of labour legislation described earlier and partly the result of labour contracts in enterprises with strong labour unions or multinational firms paying higher wages than domestic firms.

The end result is that 'protected' or formal labour markets face an excess supply of applicants, those failing to obtain employment ending up in the 'informal' or free-entry sectors where the wage tends to clear the market, reflecting supply–demand conditions.

What are the implications of this segmentation in labour markets for income distribution and the returns to unskilled labour? Two studies undertaken for Colombia shed some light on this question. By eliminating wage differentials for labourers of equal education in urban Colombia, the real wage of the most unskilled category of labour was estimated to rise by 8%.[10] This is a lower bound as only factor substitution takes place in this exercise.

When additional substitution and rural–urban migration is introduced (that is, long-run adjustments are allowed), the results can be substantially stronger. By introducing substitution in the final goods market, as well as the possibility of international trade, and by assuming that urban–rural wage differentials are maintained (which limits the degree of migration), the elimination of urban wage differentials was estimated to increase the real wage of unskilled labour, urban and rural, by 35%.[11]

(vi) The literature shows a growing pessimism about the possibility of the manufacturing sector absorbing the high growth rate of labour supply in these countries. It is argued that manufacturing employment is still a small share of total employment (15–20%), and that its growth, therefore, cannot absorb important fractions of the total labour force. It is also argued that the rate of job creation in these sectors is low for a given output growth, that is, employment–output elasticities are lower than one – in other words, employment grows more slowly than output.

The second argument, however, overlooks the fact that job creation has taken place with quite substantial increases in real wages. Clearly, one cannot have both: given the high growth rates in real wages, the employment growth has been substantial, particularly relative to other historical experiences.

Table 4 shows that, on average, employment and real wages have been growing at 3.6 and 3.7%, respectively. The question is what the increase in employment would be if additional effort were made to translate these increases in labour demand into additional employment rather than into additional wage increases, and what policy instruments should be employed in such effort. The answers to these questions are relevant to the issue of increasing the trickle-down effect of an increase in labour demand.

If the increases in labour demand that led to the combination of increases in wages and employment observed in Table 4 are maintained in the future, the following trade-off between wage increases and employment increases will occur.[12] If wages were kept at a 2–3% growth

| Growth in wages (%) | Growth in employment (%) |
|---|---|
| 2 | 7 |
| 3 | 5 |
| 4 | 3 |

Table 4. *Annual growth rates in employment and wages in the industrial sector*, 1963–1972 (percentages)

| Country | Employment | Real wages |
|---|---|---|
| Brazil | 4.1 | 2.8 |
| Colombia | 4.2 | 2.7 |
| Ecuador | 5.8 | 2.5 |
| Mexico | 1.9 | 6.9 |
| Peru | 1.8 | 3.7 |
| Unweighted average | 3.6 | 3.7 |

Source: U.N. *Growth of World Industry*, reported in P. Meller, 'Enfoques sobre la demanda de trabajo: relevancia para America Latina', (CIEPLAN, June 1978).

rate, the employment growth rate in these sectors could reach 5–7%.

The figures in Table 4 are averages for workers of all skills. As mentioned previously, evidence indicates that real wages for educated workers have grown faster because of the short-run inelasticity of the supply of educated manpower. Expansion of the educational sector (discussed in the next section) will increase this elasticity and assure that additional labour demand results in a wider employment effect rather than higher rents of already employed workers. For lower skills, wage increases coexist with elastic labour supplies stemming from the rest of the economy. The issue of labour market segmentation discussed previously is central to the explanation of this phenomenon.

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(b) *Increasing the earning capacity of the poor by augmenting their endowment of assets: identifying the good investments*

(i) *Introduction*

One way of increasing the earning capacity of poor households is to augment their ownership of productive (human and physical) assets. This option is appealing because it automatically takes care of the long run: first, by increasing present ownership it increases the future flow of productive capacity; and second, it is perceived as less paternalistic than policies that directly subsidize the consumption of the poor.

A more explicit statement of the limitations and trade-offs of such an option is needed. For example, what are the limits of using this instrument for distributive purposes without a substantial trade-off with growth objectives? What are the criteria by which this trade-off can be judged? Can an optimal level of intervention in this area be identified, that is, a level of additional asset-creation among the poor that does not adversely affect growth?

Investments in the poor that do not adversely affect growth are, by definition, those whose rate of return (valued at shadow prices, *without* a distributive weight correction) is higher than the opportunity cost of capital to the economy. Therefore, the magnitude of the underinvestment in the poor can be defined as that amount of high-yielding asset formation which does not materialize because of the market imperfections facing the poor, particularly in capital markets. Correcting such underinvestment does not introduce a trade-off between distribution and growth; on the contrary it has positive effects on both equity and growth.

Why have not governments taken care of this underinvestment if they indeed were interested in growth? Two reasons are possible: either few of these good investments remain, or the market imperfections facing the poor were a way of channelling credit and investment toward higher-income groups. In other words, credit rationings allowed income groups with access to credit to undertake investments with returns below the opportunity cost of capital to the economy.

The first task, therefore, is to exhaust the search for good investments in the poor. Only by first identifying and evaluating the contribution of these investments to their incomes can we then proceed to other interventions involving a higher degree of trade-off.

The availability of 'good investments' depends on the particular characteristics of the poor; the existence of such investments is highly country-specific, highly interdependent and highly dynamic; it depends on the age characteristics of the poor (there are fewer good investments to be made in the very old), their human capital potential (for example, the fraction of physically and mentally handicapped in the poverty group), and their initial ownership of physical capital (for example, the fraction of artisans and small farmers or sharecroppers among the poor). Some empirical evidence helpful in identifying these investments is discussed later.

(ii) *Investment in human capital*

These investments include all interventions that, by influencing the characteristics of individuals, affect their productivity as labour inputs. Investment in education and on-the-job training are interventions whose productivity effects have been well studied. Interventions at preschool age among poor children, infant nutrition, and other environmental variables such as health and psychological stimulation, have been analysed but not yet quantified for their economic impact.[13]

These investments are particularly important because half of the poor individuals are children below age 15, whose future productive potential is influenced by early interventions: raising the income of households in the present does not guarantee a sufficient investment in children on the part of their parents; in most societies the impossibility of borrowing against human-

Table 5. *Studies on the effect of malnutrition on learning*

| Authors | Deficit in performance | Probable effect on consequent learning |
|---|---|---|
| Cravioto and De Licardie (Mexico) | Auditory–visual integration | Reading ability |
| Cravioto *et al.* (Mexico) | Visual–kinesthetic integration | Writing and drawing abilities |
| Champakam *et al.* (India) | Visual identification | Reading abilities |
| Cravioto *et al.* (Mexico, Guatemala); Guthrie, *et al.* (Philippines) | Kinesthetic–visual, kinesthetic–haptic, haptic–visual, and auditory–visual integration | General learning abilities |

Source: J. Cravioto and E. de Licardie, 'The effect of malnutrition on the individual', in A. Berg *et al.* (eds.), *Nutrition, National Development and Planning*, (Cambridge, Mass.: MIT Press, 1973).

capital formation (there is no collateral) increases the possibility of underinvestment in education by poor families.

Growing empirical evidence shows that preschool children of poor families have a lower performance in most ability tests than matching controls from higher-income groups. Much of this difference can be attributed to the nutritional–health–psychological environment of preschool age children. If environmental deficits affect the future productivity of the individual as well as his future capability to benefit from schooling, the question arises whether countries are not indeed underinvesting in preschool age interventions for poor children. Table 5 presents a survey of studies whose specific aim was to evaluate the effect of infant malnutrition on specific types of abilities in young children that are crucial to basic learning. They show the mechanism by which early malnutrition can affect the effectiveness of later schooling.

Policies to change the out-of-home environment through widescale preschool compensatory programmes are difficult to undertake in the short run, unless such programmes are simply extensions of existing elementary schooling that can draw children into kindergarten programmes 1 or 2 yr earlier. Experience in the United States shows that because extensions of the 'kindergarten type' are either insufficient in themselves or improperly designed, they cannot compensate for the environmental deprivation suffered by low-income children. A more complex programme is required.

A partial solution, at least in the short run, might be a corrective policy geared to lower-income children who enter primary school at a later age (1–3 yr later) than higher-income students. Educational programmes for young women concerning childrearing practices would provide another type of solution. Two kinds of educational programme are important. First, nutrition education, particularly that relevant to infant-feeding and breastfeeding practices. Growing evidence indicates that the decline in breastfeeding practices in low-income families of urban areas is a main determinant of infant malnutrition. The resource cost of substituting breast milk appears quite large; preliminary estimates suggest that if 20% of the mothers in the urban areas of developing countries do not breastfeed, the loss in breast milk is around $365 million/yr; if half of the other 80% discontinue breastfeeding after the sixth month, the total loss reaches $780 million.[14]

Second, education on childrearing practices with particular emphasis on early stimulation is another course of action. Implementing educational programmes of this type requires some preliminary research, which has not taken place on a wide scale in developing countries. Questions that arise are: How different are childrearing practices across families in developing countries? What are the factors determining these differences? Are they related to income or to particular ethnic groups of the population?

In spite of spectacular expansions in enrolments and in the supply of educated labour, the evidence suggests that basic education is still an effective and productive way of increasing the earnings of poor households. First, still today, poor households are characterized by extremely low levels of schooling among their working members, as well as low levels of school enrol-

ment among their children; data by income groups show that 30% of heads of household in the poorest quintile of families in Colombia have zero yr of schooling. Almost 60% have only 2 yr or less. In the same income group, only 54% of children age 6–11 attend school.[15] Cross-section regional data for the other countries show that an important number of provinces still have enrolment rates under 60% for children below age 10.

Second, basic education has an important net impact on the earnings of labour, even if unemployment is taken into account and only possibilities of work in the informal sector are considered; arguments against, based on presumably high levels of unemployment among educated labour and on the notion that education is simply a screening device (to allocate 'scarce' jobs in the modern sector), do not seem to be confirmed by the existing evidence.

In the case of Colombia, adjusting the rates of return to education by the probability of unemployment lowered the rate of return from 33 to 28%.[16] Although unemployment lowers the return it still remains substantially high. Controlling for other factors positively associated with schooling and having an independent effect on labour earnings, the effect of schooling is still important. Table 6 presents a summary of results of nine Latin American countries; even controlling for occupation and type of activity (employment variables), years of schooling explains between 7 and 25% of earnings inequality. This is a strong test for education: education also changes productivity by inducing cross-occupational and cross-sectorial mobility, an effect that is not captured by these estimates. These percentages are, therefore, a lower bound for the capacity of education in explaining productivity differentials.[17] Similar results are reported for several cities of Colombia. Controlling for occupation, economic sector and social stratum, primary education increases earnings by 40, 16.4 and 38.3% in the cities of Bogota, Barranquilla and Cali.[18]

Basic education is undoubtedly an important way of increasing the incomes of poor households. Whether it is also a good investment from the point of view of resource allocation depends on the economic costs of achieving increases in earnings capacities, the rate of return to investment in primary education. Several studies show that not only the rate of return on primary education is higher than any conceivable opportunity cost of capital (the mean rate of return is 25.1%) but it is substantially higher than the return on other levels in schooling.[19] Clearly, these countries are underinvesting in basic education.

Why do not poor households increase their enrolment in basic education as a reaction to its high rate of return? Why do rich households still invest in higher education in spite of its low rate of return? Although public primary education is free, other costs of schooling – basically foregone earnings – are important costs for poor families. Their implicit discount rate is also high, even in comparison with the high rates of return to primary education. Higher education is highly subsidized in most countries, consequently the private rate of return faced by rich households is substantially higher than the social. In Colombia the social rate of return is 8% while the private is 25%; not only rich households are being subsidized but this subsidy encourages investment in a

Table 6. *Latin America – contribution of different characteristics to the explanation of earning inequality: ranges encompassing all country results** (%)

| Areas | Personal variables | | Employment variables | |
|---|---|---|---|---|
| | Education (years of schooling) | Age | Occupation | Activity |
| Urban | | | | |
| Employees | 7–17 | 10–21 | 6–12 | 5–9 |
| Self-employed | 8–22 | 15–26 | 3–9 | 3–10 |
| Rural | | | | |
| Employees | 9–13 | 10–18 | 3–6 | 3–7 |
| Self-employed | 13–25 | 12–20 | 0–8 | 1–4 |

Source: Oscar Altimir and Sebastian Piñera, 'Decomposition analysis of the inequality of earnings in Latin America' (ECLA–World Bank, August 1977).
* Countries included are: Argentina, Brazil, Colombia, Costa Rica, Chile, Mexico, Panama, Peru and Venezuela.

sector with an economic return barely matching the opportunity cost of capital relevant to most countries.

The policy implications of this are that the incentives for poor families to increase their enrolment rates must be increased. The constraint is not the capacity of schools but the demand for schooling by poor households. Additional incentives to compensate for foregone earnings (particularly in rural areas where employment opportunities for children are higher) and transportation costs are easy to implement; school breakfasts and lunches, free transportation by school buses are some examples. Such measures can be easily financed by a redistribution of subsidies within the education sector, specifically by eliminating subsidies to higher education. These measures will be analysed in detail in Section 2(c).

(iii) *Increasing the physical assets of the poor in the rural areas: identifying the good investments*

Policies to increase the ownership of physical assets by poor households are particularly relevant in rural areas. Their potential depends on the initial occupational distribution of rural households. Without considering transfers of existing land, its effectiveness depends on: the fraction of existing landowners in the poverty group, such as the ratio of subsistence farmers to landless labourers among the poor; the possibility of finding high-yielding investments among subsistence farmers; and the yield on the investment in extending cultivable land eventually to be transferred to poor households. When a redistribution of existing land is feasible, such investments can then be calibrated to take into account the complementarity between investment and transfers.

In the absence of redistributions of land the effectiveness of investment policies will depend on how important is the fraction of landowners or small farms in the poverty group. Unlike in Asia, most rural poor in Latin America are landless, accounting for two-thirds of the rural poor. The question arises, therefore, whether the present enthusiasm for a 'small-farmers strategy' to poverty alleviation can be justified in the context of Latin America. Without redistributions of land, that strategy reaches only a small fraction and the better off of the rural poor.

Credit, extension services and investment in roads and irrigation schemes are typical interventions that could increase the productive capacity of small farmers. The question is how many of these investments have a high rate of return and could easily be targeted to the poor. Two features of these countries limit the effectiveness of such policies: location and country size, and the problem of targeting without substantial leakages to high-income groups.

Subsistence farmers are rarely concentrated so that regional policy packages could be designed. Because in most countries subsistence farmers coexist with large farms, only specific programmes can be targeted (credit, technical assistance); other programmes such as roads or irrigation would subsidize other farmers as well. Unless 'non-target farmers' are charged for the programme, the financial cost per 'subsistence farmer reached' becomes prohibitive.

Because of their crop pattern, irrigation is perhaps the main constraint to increase the productivity of the small farmers. Their location (basically the high plateaus), however, makes investment in irrigation a costly undertaking and economies of scale resulting from co-operative arrangements are prevented by distance and geographical dispersion. The conclusion is that with present patterns of ownership and spatial distribution of land, possibilities of increasing poor farmers' income by means of high-yielding investments are limited.

Countries that have undertaken land reform include Mexico (1940) and Bolivia (1955), where large 'haciendas' farmed with traditional technology were subdivided into small farms. Peru is still implementing the land reform begun in 1973. The general evidence as to long-term effects of such reforms indicate that small farmers have increased their previously low income, and farm output has increased overall.

Several specific lessons seem to emerge from those experiences: the minimum farm size required to sustain farmers' incomes and to take advantage of minimum economies of scale is still high, consistently ranging between 30 and 40 ha, of which at least two-thirds is cropland and pasture; given this required farm size, only 30–50% of the rural population benefits. Over time, high population growth erodes the relative initial effect of the reform by increasing the relative number of landless families; maintenance of productivity gains not only requires high initial levels of investment, but also high levels of technical assistance and credit over time. The positive effects are less clear when large commercial estates or modern livestock operations were subject to land reform. There is a difference between redistributing land from 'haciendas' with traditional crops and redistributing land from high-technology, highly mechanized estates.

What can we learn from these experiences so as to evaluate options available today? In

countries where some reforms have taken place and where unreformed land consists basically of large, commercial estates, for which economies of scale and technology are important (livestock, sugar, cotton), or of large traditional haciendas with small cropland potential (large estates in Mexico and Peru have only 10% of the cropland but 35% of pasture land) agrarian reform options are less clear. Redistribution of highly commercialized estates can entail a high efficiency cost unless co-operatives are implemented to maintain the gains of economies of scale; but the latter involve changing difficult social and institutional constraints. Redistributing traditional haciendas of lower-quality land, basically suited for pasture, requires high additional investments to support smaller family units.

The agrarian reform option becomes more important for countries that have not experienced redistributions of land and where the increase in output from reformed land could be achieved at good rates of return on the additional investment required. Brazil, Colombia, and to a lesser degree, Ecuador, are countries where this is more probable.

What is the possibility, in some of these countries, of redistributions of land that either maintain their production level without additional investment resources or, if additional investment resources are required to raise the incomes of the beneficiaries, they do it with a high rate of return.

Several simulation exercises have been made assuming that the high productivity per hectare, usually observed in smaller farms, will be replicated when land is redistributed. Obviously, this always yields an increase in output. The problem is that the associated investment cost to maintain this replication – i.e. roads, irrigation, water, extension – is not brought explicitly into the picture so as to allow the computation of the net return to the reform.

The IBRD–SUDENE study on Northeast Brazil provides such an information. This study develops a model simulating the effects of land redistribution where 790,000 new farm modules of 34.8 ha each are created.[20] The initial conditions and the results of the land reform are summarized in Table 7. Workers without access

Table 7. *Rural Northeast Brazil**

1. The rural poor in the present: a functional breakdown

| Poverty level | Classification | Number of agents | Dependent population (million) |
|---|---|---|---|
| Less than US$50 *per capita* | Temporary workers | 2.7 million or less | 3.5 |
| Not substantially above US$50 *per capita* | Sharecroppers | 240,000 | 1.2 |
| | Permanent workers | 895,000 | 4.5 |
| | Smallest farmers | 67,000 | 0.335 |
| Above US$50 *per capita* but less than $130 | Medium farmers | 384,000 | 1.92 |
| Totals | | 4.3 million | 10–12 million |

2. Potential for land redistribution

| | |
|---|---|
| Number of existing large farms | 37,038 |
| Average size (ha) | 742 |
| Module size | 34.8 |
| Potential number of modules | 790,000 |

3. Effects of the land redistribution

| | |
|---|---|
| Net money income per module | US$781 ($130 *per capita*) |
| Net increase in value added* | US$219.2 million |
| Required additional investment per module (US$3500 per module) | US$2765 million |
| Rate of return of the investment cum redistribution | 8% |

Source: Kutcher and Scandizzo, *The Agricultural Economy Northeast Brazil* (forthcoming).
* Net of accruals to all factors other than land and over and above the opportunity of labour.

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to land currently represent two-thirds of the rural labour force and the main core of Brazilian poverty. The establishment of such 'module farms' gives land access to 20% of the landless labour in the poverty group (temporary and permanent workers and sharecroppers), increasing their *per capita* family income from 50 to 130 dollars/yr. The net increase in value added of the region, net of accruals to all factors other than land and over and above the opportunity cost of labour, is 219 million dollars. The required additional investment per module is $3500, a total of $2.7 billion. The implied rate of return to this redistribution cum investment is 8%.

The effects of this rather radical agrarian reform on the regional distribution of income are as follows. The percentage of households below a poverty line of $78 *per capita* declined from 86.6 to 77.8%, a substantial change in absolute numbers, but clearly not the solution for the problem of poverty in the rural Northeast. Although the absolute number of beneficiaries is high – around three-quarters of a million households – the absolute base of people in poverty is equally large: 4 million members of the rural labour force still remain in absolute poverty.

### (c) *The direct provision of services: the 'basic-needs approach'*

#### (i) *Introduction: toward a children-oriented basic-needs approach*

Measuring poverty alleviation in terms of welfare indicators other than income opens a new set of policy considerations. Not only *per capita* income is unequally distributed, but calorie consumption, life expectancy and infant mortality. They reflect inequality in the consumption of particular services, such as sewerage, water, education and health. Policies to increase their consumption above levels resulting from private demand and supply of these services define what has become known as a 'basic-needs' strategy. It implies interfering with resource allocation to reach these critical consumption levels at early stages of development, despite strategies to accelerate the growth in income of the poor. This strategy becomes more important the smaller the trickle-down effect of high growth rate policies on the income of the poor, the fewer the possibilities of increasing the earning capacity of the poor by high-yielding investments in their assets, the smaller the marginal propensity of the poor to spend on basic needs, and the lesser the possibility of the private sector supplying them, particularly when the supply of these services is characterized by strong complementarities and economies of scale.

Two sets of issues are central in evaluating these policies. First, at the macrolevel, they involve some trade-off with growth to the extent that these services may have a more limited effect on the productivity of the poor. What becomes important is to calibrate this trade-off at the present (high) level of *per capita* income in these countries; this trade-off appears different today at *per capita* incomes of $1000 than it did 25 yr ago when these countries had only half this income level. The second set of issues is microeconomic: (a) how can these services be delivered without major leakages to other income groups, (b) without inducing an effect simply equivalent to an income transfer, and (c) how can children be reached when intra-family leakages also occur?

Nutrition and child care, consumption of health services, shelter with water and sewerage, and basic education are typical services that determine 'quality of life'. The specific policy choice and mix are clearly country and regional specific, and involve a high degree of value judgment. Even objective judgments from the medical field, such as 'optimal calorie requirement', are still highly controversial.

The choice of a specific basic-needs strategy depends on the initial deficit, the age composition of the poor, the effect of rural–urban migration in redefining basic needs over time, and the income elasticity of the poor for different basic needs, namely, the rate at which the deficit will be closed by income growth in the poverty group.

Several factors point toward a children-oriented approach to basic needs. First, basic-needs deficits are associated with the distribution of income, and poor families have more children; the incidence of children with basic-needs deficits is larger than adults. Second, life expectancy at birth – basically determined by infant mortality – is perhaps the prime basic need. Infant nutrition, lowering of infectious diseases due to better shelter, and childcare are crucial inputs in this process. Third, evidence shows that the marginal propensity to spend on children (by defining a broad concept of such spending such as mothers' time, quality of parent–children interaction) is low. Additional rural–urban migration, a distinctive feature of the future, will compound the problem. All these propensities are lower in urban areas. In sum, normal income growth will not solve the basic-needs deficits of children.

Table 8. *Cost of the calorie deficit as a fraction of GNP (%)*

| GNP *per capita* | Mean calorie availability over mean calorie requirement | | |
|---|---|---|---|
| | 0.9 | 1.0 | 1.1 |
| 600 | 1.95 | 0.70 | 0.0034 |
| 800 | 1.46 | 0.52 | 0.0025 |
| 1000 | 1.17 | 0.42 | 0.0020 |
| 1100 | 1.06 | 0.38 | 0.0018 |

(ii) *The calorie deficit*

Countrywide survey data on the present distribution of calories in the population is extremely scanty. An alternative is to allocate known aggregate (or country mean) consumption across income groups by using available income distribution data and assumptions about the relationship between consumption and income.[21]

Consumption by income groups was derived for alternative values of mean country *per capita* consumption: 0.9, 1.0 and 1.1 times the mean calorie requirement. The resulting calorie deficit was priced using the 'cost per calorie' implicit in the cost of the food basket used by ECLA in defining poverty lines. Table 8 shows the aggregate cost of the calorie deficit as a percentage of GNP. The results are shown for countries of different GNP *per capita* and different *mean* calorie availability over mean requirement. Under the worst of circumstances, this cost is between 1.5 and 2% of GNP for countries of US$600–800 *per capita* income and about 1% for countries above US$1000.

(iii) *Options in the health sector: the change of present biases*

Present public health systems are characterized by an expensive urban–curative orientation. Social security systems have become increasingly important in providing health services, but because their beneficiaries are mainly middle-income urban employees, belonging either to the public sector or to the modern private sector, they fail to reach non-affiliated urban workers and individuals in rural areas.

In Colombia households in the poorest quintile living in large cities receive a subsidy from the public health sector 5 times larger than those in rural areas. In Brazil the percentage of public health expenditures devoted to preventive medicine declined from 87.1 to 29.7 from 1949 to 1975. The effect is that, in spite of an increase in total public expenditures in health as a percentage of GNP from 1.0 to 2.5, the amount spent on preventive medicine as a percentage of GNP has remained constant.

The expansion in the supply of rural, preventive-oriented health care will not, *per se*, guarantee increases in the consumption of these services. Interventions increasing the utilization of health institutions and in those factors affecting the demand for health services must also be identified. It was found in urban Colombia that, controlling for the income of the household, the level of family education had an important impact on the number of visits to doctors. In fact, doubling the level of schooling of the household head increased *per capita* visits by 18%. Thus, any determinant of 'health conscientiousness', schooling probably being one of them, becomes a point of intervention.

How expensive is a preventive-care-oriented health system aimed at a full coverage of the population? Preliminary estimates for Brazil show that such a system could be financed by maintaining the present 2.5% share of health expenditures in GNP.[22]

These estimates are based on a strategy that would change the present 'urban-based–individual–curative system' trend. The alternative is a stronger emphasis on primary and collective health care in rural areas and poor regions based on the PIASS plan (Program for Grass Roots Health and Sanitation Actions in the Northeast). The principle behind PIASS is that 'a large variety of health problems may be successfully prevented and/or treated at the community level, without recourse to expensive hospitalization in urban areas, and that preventive and simple curative services should be integrated with more complex curative services through well-defined institutional channels'.[23]

This system is based on three levels of medical facilities of increasing complexity: first, rural health posts in communities of 500–2000 inhabitants staffed by local auxiliaries, whose function is to prevent infectious diseases and detect more complex diseases. Second, health centres servicing three health posts and staffed by a nurse, a sanitation auxiliary, and a day-per-week visit by a doctor based in a larger health centre. This larger health centre is attached to a regional hospital, which represents the third level of health facilities and also serves the urban population.

By costing out the expansion of such institutions (operating and capital costs) and by projecting population growth, two alternative projections are made and shown in Table 9. The first aims at full coverage by the year 2000 and assumes a 7% GDP growth rate in the

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Table 9. *Brazil: coverage and costs of expanding a restructured health system*

| | Percentage coverage | | | | | |
|---|---|---|---|---|---|---|
| | Urban | | Rural Northeast* | | Cost per cent of GDP | |
| | Projection 1 | Projection 2 | Projection 1 | Projection 2 | Projection 1 | Projection 2 |
| 1975 | 79.0 | 79.0 | 0(50) | 0(50) | | |
| 1980 | 100.0 | 92.8 | 30(60) | 15(60) | 2.3 | 2.2 |
| 1985 | 100.0 | 96.4 | 65(80) | 30(65) | 2.4 | 2.4 |
| 1990 | 100.0 | 100.0 | 95(100) | 45(70) | 2.3 | 2.5 |
| 2000 | 100.0 | 100.0 | 100(100) | 70(80) | 2.0 | 2.5 |

* This coverage reflects the expansion of the first level of health posts. Values in parentheses refer to the capacity of the second and third levels, which are highly influenced by the present structure of the system.

period 1980–2000. The second involves a more moderate increase in coverage and assumes a GDP growth of 4%. In both cases the total health expenditure as a fraction of GDP remains in the 2–2.5% range.

This exercise shows that 2.5% of GDP can finance a proper health system in a $1000 *per capita* income country with reasonably good growth, if the system is restructured to a less expensive primary-care-oriented system. Most of the other countries discussed here spend between 1 and 1.5% of GNP on health; therefore, it is likely that an additional percentage point of spending, plus a restructuring of their systems along the lines described previously, could have considerable impact on the health coverage of the population.

(iv) *Issues in delivering educational services*

The first priorities in expanding educational services are to expand rural enrolment rates by increasing incentives to attend school, and to increase the quality of teachers and teaching materials in rural areas. Neither goal can automatically be attained by simply expanding the physical supply of schools or school places.

Expansion of rural enrolment implies drawing an increasing number of children from families of lower socio-economic status and less densely populated areas. Their low enrolment is the result of factors affecting the demand for schooling as well as of the availability of school places. Low educational levels of parents and the cost of schooling – foregone earnings and transportation costs – are crucial factors in influencing the demand for additional schooling.

An illustrative case is Brazil. In 1974, enrolment rates of children aged 7–14 were 72.5, 55.3 and 44.4% for the total country, total rural areas, and the rural Northeast, respectively.[24] The constraint is not the lack of school places but rather an insufficient incentive to remain in school. Subsidies to school attendance, such as school breakfasts and lunches, free provision of textbooks and clothing, and transportation, are relevant policy options. In the state of Goias, for example, experiments with school meal programmes increased effective school attendance from 67–80 to 84–95%.[25]

Another constraint is that teachers in rural primary schools, particularly in the more backward regions, have extremely low levels of pedagogical training. Ninety per cent of the teachers in Northeast Brazil lack pedagogical training altogether and most have little primary schooling. In 1972, 31% of the Northeast teaching force had not completed primary education, and in 1974, 77% of these teachers were reported to have had only primary schooling.

The inability to attract better teachers results from the low salaries paid by the rural municipalities in Northeast Brazil. Teachers with complete primary education received between US$10 and $51/month, compared with the legal minimum salary of US$57. They usually work without contracts, and their salaries fluctuate according to the budget of the rural municipio.[26]

From the previous data it is clear that a larger fraction of a country's primary education budget must be used, first, to increase incentives to attend rural schools, basically school meals (this is quite related to the nutrition objectives discussed earlier), and second, to improve the working conditions and increase the salaries of teachers in rural areas.

Preliminary estimates show that, for Latin America, providing 6 yr of schooling to the overall population would increase the educational budget by 6–17%.[27] Because the share of expenditures in education in GNP is approx. 3–4%, this increase amounts to 1/5–2/3 of one per cent of GNP. This is the cost of expanding the supply of primary school places; an ad-

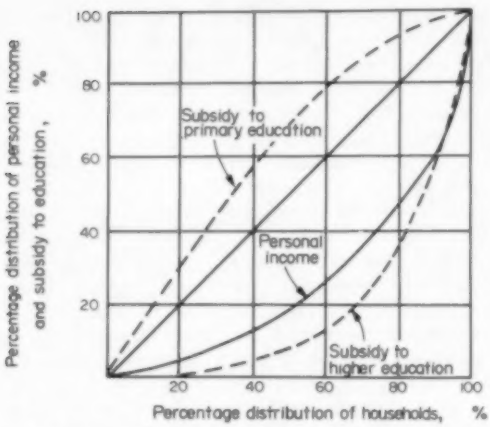


Figure 1. *Distribution of the subsidy to education and of personal income.*

ditional fiscal effort is required if better teacher salaries and school meals in rural primary schools become also part of this package. What additional sources of finance can be conceived *within* the educational sector?

The most obvious is to gradually eliminate the subsidy to higher education and to transfer these funds to primary rural education. This is an important source of financing because in most countries the subsidy to higher education is half the subsidy to primary education. Subsidies to higher education are perhaps one of the most regressive transfers in the economy. Figure 1, for Colombia, shows a Lorenz curve for the distribution of personal income and the distribution of the subsidy to primary and higher education; it is clear that the subsidy to higher education is substantially more unequally distributed than personal income.

Equity and efficiency within the educational system point to a clear solution: the replacement of free higher education by a system where tuition covers the true cost of education and where students are given loans – to finance tuition plus foregone earnings – to be repaid after graduation.

(v) *Housing and associated services in urban areas: a cost simulation exercise*

Location and typical dwelling standards limit the access of the poor to new housing and a lack of capital markets compounds the problem. Table 10 shows that in Bogota and Mexico City the cheapest housing unit currently available cannot be afforded by 47 and 55% of the inhabitants of these cities, respectively. Alternative housing standards and locations are identified to analyse the sensitivity of costs and the subsidy required to finance the difference between mortgage payments and household expenditures for rents. Practically all households in Mexico City could afford multi-family dwellings with basic services located on the periphery of the city. In Bogota, only 15% of households would be unable to finance these types of housing; to afford these dwellings, a

Table 10. *Cost of housing units of various standards and locations, percentage of households unable to afford them and required subsidy on their rents** (in 1976 US$)

| Location | Bogota | | | Mexico City | | |
|---|---|---|---|---|---|---|
| | Cost | Households (%) | Subsidy (%) | Cost | Households (%) | Subsidy (%) |
| Periphery | | | | | | |
| Single family, individual services | 1256 | 17 | 21.7 | 2063 | 14 | 9.2 |
| Multi-family, individual services | 1809 | 36 | 21.9 | 1960 | 12 | 3.4 |
| Multi-family, basic services | 1134 | 15 | 12.9 | 1274 | 4 | – |
| Intermediate zones | | | | | | |
| Single family, individual services | 4787 | 73 | 71.1 | 31,184 | 95+ | 92.6 |
| Multi-family, individual services | 2509 | 50 | 44.1 | 7777 | 72 | 70.1 |
| Multi-family, basic services | 1837 | 36 | 23.5 | 7096 | 69 | 67.1 |
| Present cheapest housing unit | 2477 | 47 | | 4988 | 55 | |
| *Per capita* income country | | US$635 | | | US$1090 | |

Source: Orville Grimes, *Housing for Low-Income Urban Families* (John Hopkins University Press, 1976).
* Subsidy is defined as the percentage by which monthly income available for housing falls short of required montly payment. Based on repayment period of 25 yr, 10% interest rate and a share of income devoted to rent equal to 15%.

subsidy of only 12.9% on the required mortage would be required. The issue is how to implement these new standards of housing.

Because these examples are quite specific to a particular metropolis (for example, the results are very sensitive to location in the case of Mexico City), a sensitivity analysis for a typical country of US$800 was undertaken with the objective of computing the subsidy that would allow urban households in the poorest 40% (of total households) to afford: (a) a dwelling equal to twice the *per capita* GNP, $1600, (b) a dwelling 5 times the *per capita* GNP, $4000.

If urban households in the poorest 40% devote 15% of their income to rent, the required fiscal subsidy on housing would have to be 0.21% of GNP for the first type of dwelling and 1.28% for the second type. The coverage would be all urban households in the bottom 40% of households, accounting for 30% of all urban households.

## 3. BALANCING THE OPTIONS: TRADE-OFFS BETWEEN BASIC NEEDS AND GROWTH

### (a) *Financing the basic-needs package*

Based on the previous considerations, our recommendation is to increase public subsidies to basic-needs-oriented sectors, from their present level of 5–7% of GNP to a new level of 10% of GNP (Table 11). This must be accompanied by changing the nature of delivery systems in each sector and transferring regressive segments of subsidies within each sector. Without this qualitative change, those additional resources will lose a large part of their poverty-oriented objective. The share of GNP spent on higher education must be kept constant or decline as a consequence of a policy of self-financing. In health, the share of urban-based curative medicine must be kept constant, and all increments devoted to primary–preventive rural health care.

For countries like Brazil, which have already reached 2.5% public spending in health, additional funds amount to only 3% of GNP. For other countries the increment reaches 5%, a doubling of public spending in these sectors.

Table 12 presents some options for financing such a programme. In the oil-producing countries – Colombia, Mexico and Ecuador – domestic oil prices are kept substantially below world prices. It is estimated that lifting them to world price levels would increase government revenues by 3, 2.5 and 4% of GNP in these countries, respectively. Half of this increase could be devoted to finance the basic-needs package, the other half to finance investment in the oil sector. In the case of Mexico, additional oil production will increase government saving, even by maintaining low domestic prices, by an additional 4.3% of GNP (from 2.2 to 6.5%) by the year 1982.[28] Half of this increase, 2.15% of GNP, is another source of finance.

If lifting the price of oil (row 1 in Table 12) is considered politically unfeasible or having a regressive impact (which we doubt, an important issue to be researched), additional taxation would be the alternative option.

Not a single report fails to emphasize that there is still room for additional fiscal revenues

Table 11. *Resource requirements*

| Sectors | Resources per sector (as % of GNP) | | Reallocations within sectors |
|---|---|---|---|
| | Actual | Target | |
| Education | 3–4 | 5 | Toward self-financing of higher education: food programmes and teacher's quality in rural areas |
| Health | 1–2.5 | 2.5 | Pro collective–preventive rural health care systems |
| Nutrition | <1 | 1.0 | Target-oriented instead of general food subsidies |
| Housing | <1 | 1.5 | Eliminating subsidies to middle-class housing. New standards for lower-income groups |
| Total | 5–7 | 10.0 | |

Table 12. *Sources of finance* (percentages of GNP)

| | Brazil | Peru | Colombia | Mexico | Ecuador |
|---|---|---|---|---|---|
| *Half* the increase in net revenues out of increasing the price of domestically sold (and produced) oil to world prices* | | | 1.5 | 1.25 | 2 |
| *Half* the additional savings out of increased oil production (at present domestic prices) | | | | 2.15 | |
| Additional taxation (in parentheses, taxation from eliminating exemption on imputed rent on owner-occupied dwelling) | 3 (1.2) | 4 (1.2) | 1.2 (1.2) | 2 (1.2) | 4.8 (1.2) |
| Eliminating the subsidy to the electricity sector | | | 1 | | |
| Additional government royalties from coal and uranium exploitation | | | 1 | | |
| Total | 3 | 4 | 4.7 | 5.4 | 6.8 |

* The additional oil revenues obtained by charging domestic consumers the world price is, as a fraction of GNP, 3, 2.5 and 4% for Colombia, Mexico and Ecuador, respectively. If only 0.5% of GNP can be raised by manipulating this option, the difference will have to be obtained by additional taxation.

by increasing (effective) direct taxation at the top of the income distribution and also by increasing the tax base. In several oil-producing countries, additional oil revenues have been accompanied by declines in the tax ratio (taxes over GNP) in the rest of the economy. In the case of Ecuador, this ratio declined from 0.186 to 0.138 between 1972 and 1977.[29] Maintaining the 1972 figure yields the additional share of 0.048 used in Table 12.

It is estimated that eliminating tax exemptions on imputed rent on owner-occupied dwellings – one of the most regressive subsidies – could yield a tax equal to 1.2% of GNP. If the upper 10% of the population receives a share of GNP equal to 0.4 and their imputed rent is 0.2 of their income, their tax base will increase by 0.08 of GNP. If their income tax is 15% it yields an additional 1.2% of GNP. In several countries, particularly Mexico and Brazil, either inflation or high levels of deductions erode the tax base. In Brazil tax deductions exempt families with gross incomes up to 4 or 5 times the *per capita* GNP. In Colombia, adjusting property prices at commercial values could yield an additional 1% of GNP, and tax reforms now being contemplated in Peru could yield additional taxation equal to 4% of GNP.

Sources of finance from reallocating subsidies presently given to other sectors have not been contemplated here, except for Colombia, where 1% of GNP could be made available by eliminating the subsidy to the electricity sector. Defense represents at least one-fourth of the fiscal budget in several countries. In Peru, several of the present subsidies to electricity and consumer goods – benefitting consumers of all income groups – are not considered here a source of finance because their elimination is part of their present anti-inflationary programme. In the case of Brazil, the investment budget of the government is held constant in this exercise.

### (b) *Trade-offs with growth: keeping uncertainty down*

What is the maximum loss to the long-term growth rate induced by this additional 5% of GNP devoted to basic needs? Let us assume the worst scenario:

(a) This additional basic-needs package has zero productive or asset creation effect on the poor. We conceive of it as a pure consumption transfer (though this would not be the case, particularly in the case of education).

(b) Oil revenues are not feasible sources of financing; therefore, the 5% is financed

Table 13. *Declines in the country's investment rate*

| Closed-economy case | | | | Open-economy case | |
|---|---|---|---|---|---|
| Interest elasticity of savings | Marginal propensity effect | Interest rate effect | Total effect | Interest elasticity of demand for investment | Total effect |
| $\epsilon = 0.5$ | −0.1 | −0.007 | −0.017 | $\eta = 0.5$ | −0.0078 |
| $\epsilon = 1.0$ | −0.01 | −0.014 | −0.024 | $\eta = 1.0$ | −0.0156 |
| | | | | $\eta = 1.5$ | −0.0234 |

entirely by an additional 12.5% income tax, levied on the income of the richest 10% of the population accounting for 0.4 of GNP. In terms of investment incentives, this tax, which affects the income of new investment, is clearly worse than the tax options discussed previously, such as the elimination of deductions and exemptions on imputed rent and increases in property taxes (which tend to tax a larger share of inframarginal income).

What is the maximum effect of this tax on the investment behaviour of the richest 10% and its impact on the overall country investment rate? Two capital market scenarios are presented to estimate this effect. Within each, extreme parameter values and assumptions are used to derive an upper bound for the decline in investment.[30]

One scenario is a closed-economy capital market, that is, no capital flight takes place. The decline in investment results from both a smaller supply of savings (a function of the marginal propensity to save by this income group) and a decline in the net yield of new investment opportunities. The decline is largest by assuming a perfectly elastic demand for investment, that is, the new equilibrium net yield goes down by the amount of the additional tax.

In the open-economy case we assume that domestic investors can invest abroad and that the return abroad is not affected by the new tax. This assumes that either the proceeds of this investment can only be consumed abroad or the proceeds can be brought back into the country in a way such that the new tax can be evaded.

To derive maximum values we assume that initially: (a) this income group investment accounts for 10% of GNP, a rather high figure; (b) this group pays a 20% ($t_1$) income tax; the additional 12.5% tax ($t_2$) is equivalent, therefore, to a decline of 15.6% in the yield of new investment ($t_2/1 - t_1$). In the closed-economy case, the results are a function of the marginal propensity to save and the interest elasticity of the supply of savings, $\epsilon$. We assume a rather high figure of 0.2 for the propensity and 0.5 and 1.0 for the elasticity. In the open-economy case only the interest elasticity of the demand for investment, $\eta$, is relevant; a range between 0.5 and 1.5 is used in the analysis.

Table 13 shows the results. In the worst of circumstances, the decline in the country's investment rate is 2.5 percentage points; that is, if the rate was initially 20%, the new rate will be 17.5%. If the social return to capital in the economy is 0.2 (gross of taxes, depreciation and excess market wage over the opportunity cost of labour), the decline in the growth rate will be at most one-half of 1% (0.2 × 0.025). If a country's historical growth rate was 6%/yr, the maximum effect will be to reduce that rate to 5.5%: *at the most 'the trade-off ratio' between redistribution and growth is* 10:1*; in other words, a 5% transfer of GNP toward 'consumption' results in a half a per cent lower GNP growth*.

Crucial in the implementation of such a policy is to keep uncertainty down. Investment behaviour is much more sensitive to uncertainty than to net yields; if the tax reform takes place in a milieu where other 'rules of the game' – concerning other property incomes or property rights – are being questioned, the negative effects on investment could be substantially larger.

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$$\text{dlog}w = (\alpha - 1)\text{dlog}L + \lambda,$$

where $w$ is the wage rate. Assuming $\alpha = 0.5$, the value of $\lambda$ consistent with Table 4 is 0.055. Given $\lambda$, we can derive the trade-off between dlog$w$ and dlog$L$.

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18. Phillip Musgrove, *Consumer Behavior in Latin America: An ECIEL Study* (Washington, D.C.: The Brookings Institution, 1978).

19. The mean rates of return for Brazil, Colombia and Chile are:

| | |
|---|---|
| primary education | 25.1%, |
| secondary education | 17.0%, |
| higher education | 10.9%. |

From M. Selowsky, 'Balancing trickle down and basic needs strategies', *op. cit.*

20. G. Kutcher and P. Scandizzo, *op. cit.*

21. This follows a technique used in S. Reutlinger and M. Selowsky, 'Malnutrition and poverty', World Bank Occasional Paper No. 24 (1976). A semi-log calorie income relationship is specified with an elasticity equal to 0.15 at a level of consumption equal to requirements.

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28. World Bank economic mission estimate.

29. World Bank economic mission estimate.

30. See Appendix for details.

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## APPENDIX

Let us denote:

$r$ = gross rate of return to investment,
$t_1$ = initial income tax paid by the richest 10% of the population = 0.2,
$t_2$ = additional income tax = 0.125,
$m$ = marginal propensity to save by the richest 10% = 0.2,
$\epsilon$ = supply elasticity of savings with respect to the interest rate by the richest 10%,
$\eta$ = elasticity of investment demand with respect to the interest rate,
$I_0$ = initial investment of the richest 10% over GNP = 0.1,
$\Delta I$ = change in the investment of the richest 10% as a fraction of GNP,
$\Delta I = \Delta_1 + \Delta_2$; $\Delta_1$ = propensity to save effect, $\Delta_2$ = lower interest rate effect.

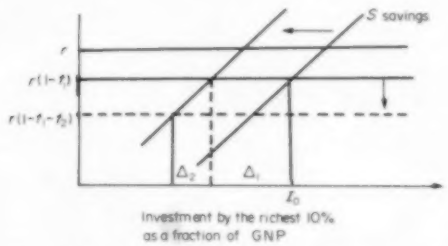


Figure A1. *Closed-economy case: no capital flight (maximum effect: $\eta = \infty$)*

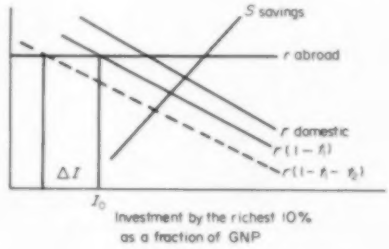


Figure A2. *Open-economy capital market (maximum effect: returns abroad not affected by taxation)*

$$\Delta I = \Delta_1 + \Delta_2 = -[0.4t_2 m] - (I - \Delta_1)\left(\frac{t_2}{1-t_1}\right)\epsilon$$

$$= -[0.4t_2 m] - (I - 0.4t_2 m)\left(\frac{t_2}{1-t_1}\right)\epsilon.$$

$$\Delta I = \eta\left(\frac{t_2}{1-t_1}\right)I_0.$$

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# Assertive Pragmatism and the Multinational Enterprise

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**Summary.** – This article proposes a simple conceptual framework regarding the literature on the impact of MNEs on developing host countries, specifying three approaches along a continuum. The acceptance approach conceives of MNE expansion as economically rational and advocates minimizing the role of government. The rejection approach sees MNE activity as essentially baleful and advocates rejecting or minimizing the role of MNEs. The pragmatic approach sees mixed effects and advocates host-government bargaining. The article submits a brief for a particular form of pragmatism, denominated assertive pragmatism, and it suggests that a process of convergence toward such an approach is under way.

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Given the sheer volume of writing on multinational enterprises (MNEs), the wide range of opinion on most facets of the subject, and the passion with which contending positions are asserted, one feels a need for a guide through the embattled, and changing, terrain. This article proposes a simple conceptual framework, focusing on the impact of MNEs on developing host countries; it submits a brief for one of the approaches delineated in that framework; and it suggests that a process of convergence toward such an approach is under way.

Despite the considerable oversimplification involved, it is useful to distinguish three main approaches to MNEs. Of course, any taxonomy of an extensive and often highly sophisticated literature, even a more highly differentiated one than that presented here, inevitably involves oversimplification: there is considerable diversity within each of the three categories; moreover, the classification is not exhaustive, some writings do not fit well into any of the categories. Still, we can usefully distinguish the acceptance, rejection and pragmatic approaches to MNEs. This paper will present only a single prototypical position for each approach, not suggesting that it is fully representative of all who may follow that approach.[1]

The three approaches lie along a continuum, without clear-cut demarcations between them. The *acceptance approach* conceives of MNE expansion as economically rational, with benefits considerably outweighing costs for the host as well as the home country; considers host-government pressures on MNEs generally harmful on balance; and thus advocates a minimal or restricted role for government. Towards the left end of the continuum, the rejection approach sees MNE activities as essentially baleful, with harm to host countries overshadowing benefits. Rejectors believe that host-government efforts to tip the balance toward the beneficial either cannot succeed or entail costs (in terms of expending scarce government capabilities) that exceed the benefits. They therefore propose that government should either reject MNEs entirely or allow them a marginal role, one in which they accord with and accommodate to host-country policies (which should be directed toward fundamental restructuring of the nation's economy). Between these two is the pragmatic approach, which views MNE operations as mixed in effect; which believes that feasible government pressures on the MNEs can produce a worthwhile improvement in the benefit–cost mix; and which therefore advocates intelligent bargaining by host countries. A particular form of pragmatism, which we call assertive pragmatism, will be specified in this paper.

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## 1. THE ACCEPTANCE APPROACH

A considerable spectrum of writers follow the acceptance approach, ranging from strong partisans who can see, hear or speak no evil of MNEs[2] to social scientists of the highest caliber and sophistication. The approach has been persuasively articulated by Raymond Vernon, conceivably the world's leading authority on MNEs, and because of his pre-eminent status, the prototypical acceptance position presented here is based upon Vernon's argument, although other writers are also referred to. Vernon's position can be presented in the form of six propositions:[3]

(1) The pervasive frictions between the world's nation-states and the MNEs are based upon a fundamental conflict between economics and politics.[4] Technological progress and the economic processes that flow therefrom produce enormous economic benefits. However, these processes also heighten world economic interdependence, thereby reducing national autonomy. This occurs just when national governments, committed to promoting welfare and development in an historically new way, fiercely desire to *increase* their autonomy and sense of control. Governments thus experience the fundamental economic–political conflict as an excruciating ambivalence: a simultaneous heightening of both their desire for the economic benefits of interdependence and their aversion to its political constraints.

(2) The MNE is a major manifestation and embodiment of the economic forces promoting global economic integration and human welfare. World-scale specialization promoted by MNE expansion raises the gross world product and allows higher living standards for all. The giant enterprises have the resources required for costly research and development activities and can spread the costs over their worldwide operations. They can finance huge productive investments that would otherwise be neglected. They increase employment and income in the host countries, raise the levels of worker skills and managerial and entrepreneurial capability, create linkage effects and promote economic development in many other ways.

(3) In contrast, the political forces of nationalism are impeditive and costly. Host-country governments may make demands that impede or prevent useful investment. Within the host-government bureaucracy, unreasoning hostility toward foreign investors may slow down the many processes relating to MNE operations and thereby raise costs. Governments may impose unreasonable and even conflicting requirements. For example, Mexico has required foreign-owned automobile producers not only to produce components domestically, but also to export them to other markets.[5] If such requirements were generalized they would be impossible for the MNEs to meet.

(4) Most political criticisms of MNEs, particularly those emanating from developing countries, are emotional and irrational. They arise from frustrations that are not validly attributable to MNEs, and 'the imperviousness of the debate to facts' arises from the impotent anger generated by these frustrations. The MNEs have the misfortune to serve as 'unwitting and unwilling lightning rods' for this anger.[6] Consider the following analyses by Vernon of antagonism toward MNEs.

Heightened world interdependence, which is caused primarily by improvements in travel and communications and merely epitomized by the MNE, *could* be accompanied by a 'sense of equality and mutuality', but because of 'the internal capabilities and self-perceptions of the leadership' it is likely to be experienced as 'a sense of inferiority and dependency', particularly in developing countries.[7]

All the ills accompanying industrialization tend to be blamed on the MNE. In less developed countries especially, the MNE 'has come to be seen as the embodiment of almost anything disconcerting about modern industrial society . . . .' but this is irrational. 'Hegemony, corruption, inequity, pollution, and indifference to consumer interest were endemic in mankind's history long before the multinational enterprise existed.'[8]

In the industrialized societies also, the charges made against MNEs tend primarily to be manifestations of something deeper – of 'the real uneasiness of our times'. The fundamental cause of these complaints is a 'pervasive mood of alienation' (caused by factors that are variously identified by different social scientists).[9]

(5) This is not to say that there are no real conflicts between governments and MNEs. There are many: governments want the capacity to control capital movements but MNEs are capable of avoiding controls; governments want foreign exchange stability but the MNEs 'have the potential for contributing substantially to the instability of currencies'; governments want the power to

tax as they wish, but 'the consequences of unilateral [tax] action by any major country can be quite substantial'; in general, '[t]he capacity of any government to command a particular firm to undertake a specified task in support of a public policy . . . has been reduced'.[10]

Government's desire for firmer powers is understandable, but even on most of these real issues the criticisms of multinationals are misguided. The various governments are often pursuing conflicting national interests in a zero-sum game; the gain of one country is offset by the loss of another. Such interactions, furthermore, threaten the spread of beggar-thy-neighbour policies which would sharply diminish the welfare of all.[11]

(6) Finally, as a practical matter, government action specifically aimed at MNEs should be quite limited.[12] This follows partially from the preceding propositions and partially from a pessimistic view of the realities of state intervention. Some public measures would clearly be worth undertaking if it were possible to implement them. For example, because of the multinationality of MNEs, government action even on affairs normally considered domestic might have international repercussions; on such matters it would be worthwhile to secure international agreement aimed at avoiding unilateral actions inadvertently harmful to other states, and at achieving multilateral actions where co-ordination is desirable. However, given the domestic sensitivity of the issues, which are subject to fierce political struggles within each country, useful international agreement has been virtually unobtainable. In point of fact, the measures which are actually being implemented tend to do more harm than good. Thus what *should* be and *can* be done is minimal and what *is* being done tends to be harmful.[13]

## 2. THE REJECTION APPROACH

The rejection approach is based typically on Marxian theory or on quasi-Marxian dependence theory,[14] although the Rejectors include other writers as well.[15] The formulation presented in the next paragraph is my own but is based on Marxian theory.[16]

The tensions associated with the spread of MNEs can be seen in this formulation as manifestations on a global scale of the basic Marxian contradiction of capitalism: between the social or interdependent nature of the productive system itself and the private nature and purpose of the control of that system.[17] (Production involves a highly interdependent meshing of a country's many different productive undertakings; it is carried on by a complex *system* of thoroughly interrelated enterprises. But the productive operations are *governed* by separate companies, seeking their own individual, not necessarily co-ordinated and often conflicting, profit-related goals.) This *social–private contradiction* results in poorly co-ordinated decisions, co-ordination being achieved only through the *ex post* action of the market ('anarchy of production'), and in decisions based on the criterion of private gain that are often in conflict with the criterion of the public good (e.g. divergences between private profitability and social benefit). The growth of the MNEs represents an extension of the basic Marxist contradiction in a wider arena. The interdependence of the productive system becomes more fully international[18] while the means and purpose of control remain relatively narrow.[19] Thus the MNE is just one more instrument, though a relatively new and important one, of an exploitative, anachronistic economic system.

The social–private contradiction inherent in MNE expansion produces or at least reinforces and extends a characteristic structuring of the world economy: one that may be called hierarchical–geographical as well as imperialistic.[20] The growth of MNEs tends to 'produce a hierarchical division of labour between geographical regions . . . [It tends to] centralize high-level decision-making occupations in a few key cities in the advanced countries, surrounded by a number of regional sub-capitals, and confine the rest of the world to lower levels of activity and income . . . . [T]he existing pattern of inequality and dependency . . . [is] perpetuated . . . . [T]he basic relationship between different countries . . . [is] one of superior and subordinate' . . . .[21] This hierarchical division of the world arises from the private, profit-oriented character of the MNEs and not from the basic nature of the productive forces. 'It must be stressed that the dependency relationship . . . should not be attributed to technology. The new technology . . . implies greater interdependence but not necessarily a hierarchical structure'.[22] Under a different form of control, an entirely different, more rational, more humane world economic structure could emerge.[23]

The rejection approach focuses on the harmful effects for the developing countries of MNE expansion: imperialism and dependence, exploitative transfer pricing, the formation or

reinforcement of a baleful set of class relations, an outflow of dividends, interest, royalties and fees exceeding the inflow of capital, which is viewed as a drainage of capital, and many other negative consequences.[24] Conversely, the approach gives short shrift to host-country benefits generated by the MNEs. Such benefits are seen as accruing primarily to a narrow ruling class or set of élites, including perhaps a small 'labour aristocracy' employed by the MNEs, with little or nothing trickling down to the mass of the population.[25]

Thus, the only appropriate and ethical[26] stance is either to reject the MNEs more or less entirely or to allow them a marginal role, completely subordinate to the government economic development orientation,[27] while government devotes its limited capabilities to the fundamental task of reconstructing the nation's political economy, probably on a socialist basis.[28]

## 3. THE PRAGMATIC APPROACH

### (a) *Assertive pragmatism delineated*

Lying between the acceptance and rejection approaches, the pragmatic approach declares the mixed nature of the MNE impact on developing host countries, and in direct contrast with the other approaches' rejections of active government involvement with MNEs, the pragmatic approach favours active host-government bargaining with and regulation of MNEs in order to improve the cost–benefit mix. This approach is in consonance with the strategy employed by most developing countries and with the thought of many social scientists,[29] and represents, I suggest, a position towards which Acceptors and Rejectors are tending to converge (more on this later). This article distinguishes between the pragmatic approach in its most general form and a particular expression of the approach which may be called *assertive pragmatism*. The rationales for both general and assertive pragmatism presented here are the writer's own and would surely not be acceptable to all other pragmatists. For expositional convenience, however, we will speak of *the* pragmatic or *the* assertive pragmatic approach.

Our rationale for pragmatism in general is based upon a social science *uncertainty principle* which simply states that social science is capable of providing only uncertain answers at best. The important issues, particularly in developing countries, are engulfed by uncertainty. Existing theory is inadequate and the real-world situation is immersed in all manner of unknowns.[30]

Uncertainty engulfs attempts at overall appraisal of any major development. Evaluating the costs and benefits of any historical process requires an assessment of the alternatives foregone, and such counterfactual hypotheses are unavoidably highly speculative. Implicit differences in conceptions of the alternatives foregone largely account for the seemingly evidence-resistant nature of many of the grand arguments over the impact of the MNEs. Given these implicit differences, the antagonists commonly talk past one another. Even specifying the actual process is a formidable undertaking. One is hard put simply to identify the vast multiplicity of important economic, political, sociological and other effects of any major development, let alone to measure them.

It follows from the uncertainty principle that it is more concretely useful to eschew grand historical appraisals in favour of narrower evaluative tasks. The focus most congenial to the pragmatic approach is on the inquiry: in the existing real-world situation, by what means can welfare – of some particular group or class, or of some country or group of countries or of the world – be enhanced. This paper's focus is on the welfare of the Third-World peoples.

It also follows that one should be skeptical of putative large, long-term gains from a proposed set of measures. The Pragmatist places less credence in such predicted benefits, i.e. attaches a greater discount for risk, than the more convinced analysts who pay little heed to the possibility that they may be wrong, and he gives greater weight than they do to definite immediate benefits. The Pragmatist also tends to place a higher premium on measures which are reversible and a greater discount on policies which entail substantial social pain.

The approach is not necessarily conservative. Proposals promising definite, near-term benefits are often opposed because of fears of indirect, long-term harm. The Pragmatist, with his greater skepticism about roundabout, long-term effects, is more likely to favour such proposals than the Acceptor who deplores unwarranted interference with the market mechanism or the Rejector who fears diversion of popular energies from the basic task of fundamental social restructuring. Nor is the approach linked only to minor changes. While it does tend to favour piecemeal decisions, allowing evidence and experience to accumulate before proceeding further, even profound social changes can be achieved on a step-by-step basis.[31]

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Turning specifically to assertive pragmatism, our rationale is based also on a second conception – an extension of the already discussed Marxian concept of the social–private conflict. This extension departs from the original Marxian vision; even if one considers the Marxian concept a highly useful insight, one need not believe that Marx's horizon was unlimited. Marx did not foresee the unfolding of that conflict.

It can be argued that capitalism's viability has been extended in the face of the social–private conflict by the superimposition of a degree of social management upon the private control of the productive system. This social management took the form of state intervention to deal with system-threatening problems; the state undertook economy-stabilizing fiscal and monetary policy, more effective regulation of the banks, unemployment insurance, social security, and all the other functions that characterize the modern mixed economic system. The social stewardship of the socially interdependent productive system curbed the most ominous domestic malfunctions of the capitalist economies.

We have already suggested that the expansion of the MNEs can be seen within the Marxist paradigm as an extension of the social–private conflict on a global scale. Productive interdependence becomes more thoroughly international, but the means of state control remain national. Once again the means of control are more parochial than the productive system they attempt to harness.

This extension of the Marxian conception depicts a problem but it also directs attention to a possible means of coping with the problem. It suggests the possibility of developing still broader means of control, i.e. some form of governmental action of transnational scope.

Intellectual symmetry suggests parallelism: just as national manifestations of the social–private conflict are dealt with on a national governmental level, so the global manifestations should be handled on a world governmental level. But such an orientation would be visionary. It is more realistic to discuss moves toward more cosmopolitan means of control through increasing the effectiveness and scope of international agencies and international agreements, and more important, through the implementation by individual governments of complementary policies.[32]

Our extension of the Marxian social–private contradiction implies that the web of interdependence in the national and international political economy is loosely enough interwoven so that separate elements can be altered in a way that would improve the functioning of the system. In contrast, systemic interrelations are considered (perhaps implicitly) much more tightly interwoven by Acceptors and Rejectors. For the Acceptor, government interference with the market mechanism is likely to have broad consequences of a negative character that will outweigh apparent improvements. For the Rejector, the system will compensate to preserve the privileges of the ruling class, so that improvement can only be minimal at best while energies are diverted from replacing the system itself. Related to the pragmatic conceptions of loosely woven interdependence and improvability is the associated judgment that despite all their shortcomings governments can be a vehicle for achieving potential improvements.

Assertive pragmatism – with its skepticism about soul-satisfying ideological scenarios, its preference for more certain short-run benefits and distrust of putative long-run benefits, its predisposition toward active use of government – is essentially a mindset, a predisposition on how to proceed. Assertive Pragmatists may differ in many ways: in their degree of assertiveness (for a particular level of bargaining strength), in their preferences for capitalism or socialism, in their conceptions of the balance of benefits and dysbenefits generated by MNE activities etc. Similarly, assertive pragmatic stances may be adopted by countries with different class structures, different bargaining positions, and other major differences. The approach adumbrates a general position, but it nevertheless leaves wide scope for disagreement, doubt and indecision.[33]

Let us wind up our delineation of assertive pragmatism by returning briefly to Rejector criticisms: that the Pragmatist, even if assertive, is willing to settle for relatively small gains; that the benefits that occupy the Pragmatist accrue primarily to a narrow ruling class or set of élites; and that the harm done by MNEs – in aggravating dependence, forming and solidifying exploitative class relations, directing economic growth along capitalist rather than socialist lines – is monumental.

The Assertive Pragmatist does not dismiss Rejector criticisms of the MNE lightly and agrees that a serious case can be made that the impact of the MNE may on balance by injurious. Nevertheless, the Pragmatist (or this one at any rate) justifies his position by pointing out that the benefits that do 'trickle down' are often too lightly dismissed[34] – such dismissal is only for the affluent[35] – and by reiterating both his uncertainty-based skepticism about

trading off these benefits for speculative benefits of a broader nature and also his observation that the capitalist state *has* proved capable of ameliorating fundamental problems.[36] The Pragmatist considers the rejection approach doctrinaire.[37] He also finds that the rejection approach exhibits a curious ahistorical strand that contrasts sharply with the broadly historical character of Marxist and dependence theory. The major problems of any period are typically characterized as inherent in capitalism and ineradicable except through socialism. If in fact the problem is alleviated, attention is then refocused single-mindedly on the new problems that inevitably emerge out of the modified conditions. The improvements are ignored; the error in calling the previous problem immutable is forgotten; and the new problems are again considered ineradicable.

For example, Marxists maintained that foreign investment ineluctably thrust the less developed economies into a primary-producing role in the world division of labour. When in fact MNEs began investing in the industrial subsidiaries in poor countries, neither the industrial progress made nor the error in the previous pronouncements were seriously noted. Instead attention shifted to the problems generated by these subsidiaries – enterprises which used inappropriate technology and employed a small labour aristocracy to produce inappropriate products for a small élite, thereby increasing unemployment, restricting local demand and thus local production, preventing the emergence of a local capital goods industry producing simpler capital goods, aggravating technological independence, generating excessive payments to the MNEs etc. Thus, say some Marxists, industrial growth under MNE auspices 'may properly be characterized as 'perverse growth'; that is, growth which undermines, rather than enhances, the potentialities of the economy for long-term growth'.[38]

### (b) *Assertive pragmatism implemented*

Many international organizations and programmes for dealing with MNEs exist or have been proposed. The United Nations has set up a Center on Transnational Corporations. Other UN bodies, such as UNIDO, FAO, UNCTAD and others try to assist the developing countries in their relations with the MNEs. International agreements or codes helpful to less developed countries on patents and on the transfer of technology are negotiated. There are proposals for a GATT type of agreement on MNEs. Broad groupings such as the Group of 77 and narrower ones such as the Andean Pact have concerned themselves with MNE-developing country relations, and many other varied schemes for international co-operation have been proposed.[39]

These international bodies and programmes provide media for exchange of views and knowledge, for systematic collection and dissemination of information, for undertaking studies, for co-ordination of policies and reduction of competition between host countries, and for the establishment of informal contacts likely to facilitate co-operation between governments. International organizations might also assist developing nations in negotiations or other dealings with MNEs by providing foreign expertise and training for indigenous personnel.

More important than international bodies and programmes, however, are the actions of the individual host countries.

Not long ago, the less developed countries had little confidence in their ability to assert themselves in the international economy. As a former Nigerian Minister of Economic Development lamented, Nigerians must accept 'that we shall continue to be under the control of the imperialists and capitalists who have taken the lead in this world in economic development'.[40] To a substantial extent, the sense of weakness expressed in this statement was justified.

For one thing, there are significant internal differences within most of the developing countries concerning MNEs. The dominant classes have been in a position to benefit substantially from them, through positions, directorships, bribes, business linkages, and in other ways. The potential personal gains influence their perceptions of the national interest, often to the detriment of the majority. The 'labour aristocracy', with good jobs in the large foreign firms, also have a direct stake in the MNEs. Even public interest-motivated government agencies might be partisans of an MNE. For example, the Western Nigeria Development Corporation successfully opposed the establishment of a competing cement company in Western Nigeria in order to protect the monopolistic profitability of the existing multinational subsidiary in which it had a 39% holding.[41]

Furthermore, the MNEs constitute formidable bargaining adversaries. Even in extractive industries, where the developing countries are relatively strong in negotiations, MNE negotiating strength generally has been impressive.[42] This is particularly true in the least developed countries, where MNE control of essential

technology and market access may be firmer than elsewhere.[43]

In manufacturing for export, Third-World bargaining power with the MNEs is especially weak. The MNEs have firm control of the relevant technologies and of most marketing outlets, particularly if the developing nation is producing a component of some kind. Moreover, the MNEs have the political clout necessary to combat high developed-country trade barriers against manufactured imports from less developed countries. Competition to attract MNE export manufacturing subsidiaries further weakens the bargaining position of the developing countries.

When their leverage was slight, the developing countries naturally concluded poor bargains with the MNEs – a problem that was intensified by their very feelings of weakness, for outcome is partially a function of the assurance of the negotiators. Whatever the issue, whether a simple division of economic gain or a broad societal matter, the developing countries were able to capture only a small part of the distance between the minimums they would accept and the maximums the MNEs might concede.

In fact, developing countries have not infrequently incurred direct economic *losses* in their dealings with MNEs. A profitable foreign investment can quite easily reduce national income.[44] The likelihood of a net national loss rises if the host country offers investment incentives such as tariff protection (which imposes a transfer from domestic consumers to the protected firm) or tax forgiveness (which transfers potential tax revenues to the foreign investors).[45] Further, when developing-economy bargaining weakness was compounded by foreign swindling or sharp practices and/or by domestic political venality, many joint investment deals have been made which turned out to be complete fiascos for the host nations.[46] Moreover, some technological change, for example the introduction of labour-saving technology in a labour-surplus economy, may also lower host-country welfare.[47] One major study found that almost 40% of the MNE manufacturing projects examined in developing economies had negative effects on host-country social income.[48]

If a few developing countries tried to make tough demands in the era of generally soft bargaining, they were usually unsuccessful. The MNEs could adopt an unyielding stance and if necessary could usually turn to other potential hosts, while the recalcitrants were likely to be left empty-handed.

Gradually, however, developing-country bargaining power has been strengthened, partially by the very process of MNE expansion that was encouraged by developing-country weakness. A variety of factors have been involved.

Once the capital has actually been sunk into a project, the negotiating potency of the host country is sharply increased, particularly if significant amounts of capital are involved. In successful ventures the very profitability of the enterprise makes the MNE more amenable to pressures. The MNE commitment to its overseas ventures also tends to be heightened by organizational changes institutionalizing this commitment and by increasing reliance on foreign markets. Growing familiarity in the host country with the operations of an established subsidiary tends to dispel the air of impenetrable mystery and expertise and increases host-country confidence. The proliferation of multinationals and increasing competition among them has been an important source of host-country stiffening, for these developments have made available multiple sources of capital, technology, other know-how, and even market access, including sources other than those provided by direct investment.[49] Local capability for carrying out operations that were once the exclusive purview of foreign investors has also increased.[50] Developing-country ability to win better terms has also been enhanced by the various forms of international co-operation discussed earlier.

These elements of strength are reinforced by a process which we will call *self-fulfilling aspiration growth*. As already indicated, a feeling of bargaining weakness tends to exacerbate that weakness. But as the negotiating position of the developing countries improves they are encouraged to toughen their demands. At some point, a 'critical mass' (or average level) of toughness[51] is reached, by which we mean a 'mass' or level which institutes the spiral process of self-fulfilling aspiration growth.

The spiral works in this way. The increasing demands and aspirations of the developing nations, emerging in a bargaining situation in which these nations have won relatively little, tend to be effective in winning better terms. Encouraged by this, their aspirations and negotiating demands rise. So long as the settlements actually reached fall far short of the maximums that the MNEs would be willing to concede, the heightening of aspirations and demands continues to be successful. A self-reinforcing spiral gets underway: rising aspirations bring about better terms which cause further heightening of aspirations and so on. This is the process of self-

fulfilling aspiration growth.[52]

Possible gains are multidimensional, and countries with different goals will presumably seek somewhat different sets of gains. Those more favoured by leftist countries, such as income equalization and significant reductions in unemployment, are probably more difficult to bargain for than the more commonly sought gains, such as increases in national income or in government revenue.

The spiral is not an endless one, of course. As the settlements between the developing countries and the MNEs move further from the developing countries' minimums towards the maximums the MNEs are willing to concede, MNE resistance increases and tends to slow down or halt the process. The developing countries find that wresting further concessions from the MNEs incurs increasing costs, particularly in the form of curtailing investment with its infusion of capital, technology, other know-how and market access, so that after some point the marginal costs of further demands may exceed the marginal benefits.

Experience confirms that the developing countries have been benefiting from tougher bargaining with MNEs, as the thesis of self-fulfilling aspiration growth suggests.

Developing countries have been securing a more favourable distribution of direct economic gains. Many investments have yielded (and prospective investments have promised) considerable quasi-rent to the MNEs, i.e. a return beyond that needed to induce the investor to continue his operations or to undertake further investment. It is clear in retrospect that there had been a substantial rent element in earnings related to minerals and petroleum, an element that the developing economies subsequently found that they could tap for themselves. And 'there is growing evidence of the existence of 'quasi-rent' . . . in the earnings of transnational manufacturing enterprises in less developed countries as well'.[53] The developing countries have been able to raise their share of such income through higher taxes, royalties, participation in ownership and the like without serious consequences for themselves.

The developing nations have also pressured MNEs into actions which generate further domestic development. They have prodded domestic subsidiaries into creating local linkages. Although many such firms are disposed to secure from their own worldwide corporate family as many of their intermediate inputs as possible, under pressure they have 'seemed to be accepting the desirability – or, at any rate, the inevitability – of maintaining close ties with the surrounding economies . . . '.[54]

The less developed nations have prevailed upon reluctant MNEs to establish domestically operations they would have preferred to carry out elsewhere.[55] They have also promoted deliberate adoption of appropriate technology.[56] They have sometimes spurred foreign investors into a continuing entrepreneurial role.[57] Under pressure many foreign-owned manufacturing subsidiaries 'have moved on to other activities: from simple manufacturing processes and products toward complex ones; from easy marketing in the local economy to difficult marketing abroad'.[58]

Developing countries have had relatively longstanding policies of accelerating indigenization of labour and management through informal insistence and formal government action. Indigenization of ownership, i.e. divestiture, has also been pushed, for example, in the Zambian copper mines (with neither of the two nationalized MNEs raising any objections in principle despite previous government denials of nationalization intent),[59] and in Nigeria through its Indigenization Decree.[60]

Local MNE subsidiaries have even been prevailed upon to support broad international political objectives of the host country, sometimes at considerable cost to the subsidiary. For example, Sklar relates how the Zambian copper mining subsidiaries of Anglo American Corporation and AMAX 'co-operated fully and loyally' in Zambia's costly efforts to free itself of logistical dependence upon white minority-ruled Rhodesia.[61]

The MNEs have generally accepted all the prodding and pressuring. They have come to expect continually escalating demands when they are successful[62] and this is built into their initial investment calculations and decisions. In fact, in favourable circumstances, a 'determined and stable public sector . . . can get foreign investors to accept 'unacceptable' conditions while obtaining a rising flow of' foreign investment.[63]

By now it is clear that developing countries have achieved absolute gains and that MNEs have continued to thrive in a milieu of government pressures on and bargaining with MNEs. This of course does not disprove the cases made by the Acceptors or Rejectors, but it has tended to persuade many to moderate their views. 'There is no longer the sharp separation between those who think that what is good for General Motors is good for humanity and those who see in the multinational corporations the devil incorporated.'[64] The basic orientations remain quite vigorous but there has been some

degree of convergence toward the pragmatic approach. Many Acceptors have come to see possible Third-World gains in a somewhat wider range of host-goverment measures concerning MNEs and many Rejectors have come to recognize a wider range of actual or potential host-country benefits from MNE activities. In the distribution of positions, the 'standard deviation' around the pragmatic position in the centre has decreased.

## NOTES

1. There are, of course, other taxonomies. See, for example, the interesting six-fold classification proposed by Lall in 'Less-developed countries and private foreign investment: a review article', *World Development*, Vol. 2, Nos. 4–5 (April–May 1974), p. 43.

2. For example a General Motors vice-president who discussed the United Nations objective of introducing 'some form of accountability to the international community' solely in terms of harmonizing national laws so that the MNEs could function with fewer impediments. United Nations, *Summary of the Hearings Before the Group of Eminent Persons to Study the Impact of Multinational Corporations on Development and on International Relations* (New York: United Nations, 1974), ST/ESA/15, p. 81.

3. We have distilled these six propositions from his latest book, *Storm Over the Multinationals: The Real Issues* (Cambridge, Mass.: Harvard University Press, 1977). This book is intended to be the definitive survey of the role of MNEs, a presentation of 'the real issues'.

4. Johnson stated this point as follows: 'In an important sense, the fundamental problem of the future is the conflict between the political forces of nationalism and the economic forces pressing for world economic integration. This conflict currently . . . is between the national government and the international corporation . . . 'Harry Johnson, *International Economic Questions Facing Britain, the United States and Canada in the Seventies* (London: British–North American Research Association, June 1970), p. 24, quoted by Robert Gilpin, *United States Power and the Multinational Corporation: The Political Economy of Foreign Direct Investment* (New York: Basic Books, 1975), p. 220.

5. Vernon, *op. cit.*, pp. 212, 215.

6. *ibid.*, pp. 152, 145.

7. Raymond Vernon, 'Storm over the multinationals: problems and prospects', *Foreign Affairs*, Vol. 55, No. 2 (January 1977) (pp. 243–262), p. 249. (This article is based on Vernon's book, cited previously.) Vernon also stated that the MNEs have aroused much 'speculation and foreboding over their effects on the national economy . . . [and] much of it has been very wide of the mark'. The sense of independence the developing economies are seeking is a 'Holy Grail'. 'Storm', pp. 245 and 253; see also *Storm*, pp. 204, 212.

8. Vernon, *Storm*, pp. 19, 14.

9. *ibid.*, pp. 137–138. 'The multinational enterprise cannot escape the consequences of the pervasive unease in the industralized world'. It is a highly visible scapegoat. *Loc. cit.*

10. *ibid.*, pp. 123, 125, 136.

11. C. Fred Bergsten, Thomas Horst and Theodore H. Moran speak of 'the threat of investment wars – primarily between home and host countries . . . – because these countries increasingly seek to tilt the benefits of foreign direct investment in their national directions'. *American Multinationals and American Interests* (Washington, D.C.: The Brookings Institution, 1978), p. 487. Investment wars are 'akin to the trade wars of a past generation', p. 494.

12. Some of those grouped here among the Acceptors are labelled by Sanjaya Lall as neo-traditionalists who 'believe in the good, old-fashioned virtues of early capitalism [but] are worried by the giantism and power of the present MNE . . . '. These tend to favour some intervention by host governments. Lall, *op. cit.*, p. 44.

13. Vernon, *Storm*, Chap. 9. See also, Bergsen *et al. op. cit.*, pp. 493–495. The basic thrust of their policy recommendations 'is to maximize global economic welfare by maximizing the scope for foreign direct investment to respond to market forces. This requires both widespread agreement that such rules are desirable and active intervention to thwart efforts by individual countries or groups to induce deviations from the norm, through either constraints or excessive inducements'. They want an 'open and effective international economic system'. They are akin to Lall's neo-traditionalists, however, for they also favour policies 'to deal with those cases where the social costs of unfettered corporate activity would simply be too high'.

14. Lall refers to dependence theory which is 'not quite Marxist' but not simply nationalistic. Lall, *op. cit.*, p. 45.

15. Perhaps the most widely known work embodying the rejection approach is Richard J. Barnet and Ronald E. Muller, *Global Reach: The Power of the Multinational Corporations* (New York: Simon & Shuster, 1974), a book which is neither Marxist nor of the dependency school.

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16. As the credo of a new Marxist journal states, there are 'many Marxisms'. *Marxist Perspectives*, Vol. 1, No. 1 (Spring 1978), p.3.

17. In Marx's terms, the conflict between 'the material forces of production in society' and 'the existing relations of production . . . [i.e.] the property relations'. Marx sets forth this conflict in summing up the 'general conclusion' he reached in his early study of political economy 'which once reached, continued to serve as the leading thread in my studies . . . '. Karl Marx, *A Contribution to the Critique of Political Economy* (Chicago: Charles H. Kerr, 1904), pp. 11–12.

18. Of course, international economic interdependence existed long before the spread of MNEs, but to a lesser degree.

19. An explicit reference to this social–private conflict is made by Hymer: ' . . . the MNE . . . demonstrates the social nature of production on a global scale' but it creates profound problems because 'the MNE is still a private institution with a partial outlook'. The era of the MNE 'reveals once more the power of social cooperation . . . [but it] also shows the shortcomings of concentrating this power in private hands'. Stephen Hymer, 'The multinational corporation and the law of uneven development', in Jagdish Bhagwati, *Economics and the World Order from the 1970's to the 1990's* (New York: Macmillan, 1972), pp. 133–134. Further on Hymer in the next note.

20. This particular formulation is that of Hymer, one of the foremost theorists of the rejection approach. Hymer did some of the early significant work on MNEs when he was writing as a mainstream economist, but subsequently adopted a Marxist orientation. His hierarchical–geographical concept was, in our view, a significant development of Marxian thought about MNEs. Baran and Sweezy had emphasized the supranational aspects of MNEs. Concerned with their own long-run interests and oblivious of nationality, making decisions on the basis of alternatives all over the world, the MNEs' impact on more developed or less developed countries, on home or host countries, was incidental: ' . . . the decisions and actions of the multinational companies are taken solely with a view to promoting the interests of the companies themselves and . . . whatever effects, beneficial or injurious, they may have on the various countries in which they operate are strictly incidental' (p. 29). The MNEs' common interests and objectives – and this is the basis of contemporary imperialism – lie in the preservation and extension of relatively unfettered capitalism. [Paul A. Barna and Paul M. Sweezy, 'Notes on the theory of imperialism', *Monthly Review*, Vol. 17, No. 10 (March 1966), pp. 15–33.] Hymer challenges the Baran–Sweezy notion of supranationality and restores a geographical base for Marxist imperialism theory by rendering the hierarchical, exploitative nature of MNE operations accordant with the North–South geographical division of the World.

21. Hymer, *op. cit.*, p. 114; also pp. 124–125, 127.

22. *ibid.*, p. 126.

23. *ibid.*, pp. 126–127, 134–135.

24. These criticisms of MNE-generated benefits are discussed further at the end of Section 3(a).

25. A distinction might be made between the argument that MNEs have a negative impact on development and the argument that whatever the proximate effect of MNEs they are harmful because they reinforce capitalism and obstruct the emergence of socialism.

26. The Rejectors, like many radicals, have a strong tendency to consider those who disagree with them as not only wrong but also morally tainted.

27. For example, Tanzania's 'basic principle' with respect to foreign investment, says Neersø, 'is that if foreign investors cannot adopt themselves to the regulations considered necessary by Tanzania, she is better off without their investments'. Peter Neersø, 'Tanzania's policies on private foreign investment', in Carl Widstrand (ed.), *Multinational Firms in Africa* (New York: African Publishing, Holmes & Neier, 1975), p. 194.

28. 'Multinational corporations and nations are . . . fundamentally and irrevocably opposed to each other. The logic of each, carried to its final conclusion, is to destroy the other. Or to put the point differently, the historic course of the global capitalist system is leading to one of two outcomes: world empire or world revolution.' Paul M. Sweezy and Harry Magdoff, *The Dynamics of U.S. Capitalism* (New York: Monthly Review Press, 1972), p. 111. Hymer is equally sure that it is necessary 'to go beyond the MNC' and to replace the capitalist system, but he's not at all sure what to replace it with (pp. 131–135). He favours some vaguely defined kind of 'alternative system of organization in the form of national planning', with emphasis on *local* 'social and political control of economic decision making . . . ' (pp. 126–127).

29. For example, Diaz Alejandro, Helleiner, Lall, Penrose and Streeten, all cited in this essay. A development text with a pragmatic orientation is *Economic Development in the Third World* by Michael P. Todaro (London: Longman, 1977); see especially pp. 326–332.

30. Streeten, who discusses many areas of uncertainty regarding MNEs, remarks: 'A major difficulty in assessing [the effects of MNEs] . . . is that far from being able to quantify precisely these effects, we do not even know, in general, their direction.' Paul Streeten, 'The multinational enterprise and the theory of development policy', *World Development*, Vol. 1, No. 10 (October 1973) (pp. 1–13), p. 3.

31. One might maintain that the pragmatic approach

puts ideology in its proper place. In the hurly-burly of the real world, 'policy decisions are unavoidably influenced by ideology, more specifically by the prevailing policy predisposition and the desired politico-economic destination'. In the presence of uncertainty 'decisions are inevitably influenced by the leadership's policy predispositions, based on a melange of attitudes, emotions and prior convictions. Decisions are also colored by the related matter of the desired politico-economic destination of those with power, i.e. the kind of political economy they want to establish.' While such reliance upon ideology is unavoidable for any decision-maker, the uncertain Pragmatist, skeptical of grand predictions, tends to keep ideological predispositions subservient to evidence and subject to review in light of experience. [This writer's *Nigerian Capitalism* (Berkeley: University of California Press, 1977), pp. 282–283; apologies for quoting myself.]

32. 'Ultimately, the only proper response to an organization that takes a global view will be global control'. In the meantime, however, 'national governments will have to find ways . . . '. Streeten, *op. cit.*, p. 7. Vaitsos speaks of the need for 'a certain degree of unity of action'. Constantine V. Vaitsos, 'Power, knowledge and development policy: relations between transnational enterprises and developing countries', in Gerald K. Helleiner (ed.), *A World Divided: The Less Developed Countries in the International Economy* (Cambridge: Cambridge University Press, 1976), p. 141.

33. For this reason, Carlos F. Diaz Alejandro recommends use of policy rules of thumb. 'Direct foreign investment in Latin America', in Charles P. Kindleberger (ed.), *The International Corporation* (Cambridge, Mass. The MIT Press, 1970), pp. 328, 342.

34. Hymer, for example, says: 'At most, one-third of the population can be said to benefit in some sense . . . ' (p. 131). However, this may amount to hundreds of millions of people. Moreover, Hymer dismisses even this gain by a relativity that grates in this era of emphasis on absolute poverty. The gain involves only 'an illusion of upward mobility' because relative status remains unchanged. 'In each period subordinates achieve (in part) the consumption standards of their superiors in a previous period and are thus torn in two directions: if they look backward . . . things *seem* (my emphasis) to be getting better; if they look upward they see that their relative position has not changed. They receive a consolation prize . . . softening the reality that in a competitive system, few succeed and many fail.' Hymer, *op. cit.*, p. 125.

35. A recent study indicates that even in Brazil, where the income-distribution effects of economic growth have been severely criticized, the absolutely poor made considerable gain, although those slightly higher on the economic ladder did not fare so well. Gary S. Fields, 'Who benefits from economic development? A reexamination of Brazilian growth in the 1960s', *American Economic Review*, Vol. 67, No. 4 (September 1977), pp. 570–582.

36. 'The relation between the MNE and these social objectives ['equality . . . jobs, livelihoods and generally meeting the needs of the masses of poor people'] will, to a large extent, depend upon the ability and willingness of the host government to pursue the 'right' policies.' Streeten, *op. cit.* p. 2. If, however, the host-country government does not carry out policies which capture MNE-generated benefits for its people, the Assertive Pragmatist stands with the Rejector in holding the MNE as well as the government responsible. The Pragmatist basically agrees with Baran's biting criticism of 'the observation that what the government of a source country does with its receipts from foreign enterprise has after all nothing to do with the 'purely economic' appraisal of the foreign enterprise's contribution to . . . economic development . . . . This view affords a veritable textbook example of the inherent incapability of bourgeois economics to penetrate the subject matter of its investigation.' The existence of foreign investment 'and the existence of wasteful, corrupt, and reactionary comprador regimes . . . are not fortuitous coincidences but [are] . . . interconnected aspects of' one reality. Paul A. Baran, *The Political Economy of Growth* (New York: Monthly Review Press, 1957), pp. 217–218. Thus, Streeten asserts that if policies intended to capture MNE benefits for the host-country people 'are absent or defective, or are themselves the result of the pressures of the MNE, the MNE may be judged by its impact on variables normally regarded as proper direct objectives of government policies'. Streeten, *op. cit.*, p. 2.

37. Because of its tendency to be simplistic, the rejection approach is not embraced by all Marxists. Thus, in discussing oversimplifications regarding the impact of foreign investment on developing countries which 'may easily lead to a false orthodoxy and have disastrous consequences in actual policy', the Hungarian Marxist economist Tamas Szentes takes essentially a pragmatic approach. He criticizes a 'one-sided critique of colonialism. This version takes into account the fact of the exploited and disadvantageous position of the countries in question in the international capitalist division of labour, but it neglects the structural background of the latter as well as the shifts of power factors within it, and thus cavalierly suggests prompt and complete disengagement from the international capitalist system without considering the historical context, the conditions, and the costs of such a disengagement.' Tamas Szentes, 'Socioeconomic effects of two patterns of foreign capital investments, with special reference to East Africa', in Peter C. W. Gutkind and Immanuel Wallerstein (eds.), *The Political Economy of Contemporary Africa* (Beverly Hills, Calif.: Sage, 1976), pp. 261–262.

38. Giovanni Arrighi and John S. Saul, 'Socialism and economic development in Tropical Africa', *Journal of Modern African Studies*, Vol. 6, No. 2 (July 1968), p. 150. The authors attribute the perverse-development concept to Sachs in a 1966 paper. It is similar to Frank's concept of the underdevelopment of an economy. See, for example, his 'The development of

underdevelopment', *Monthly Review*, Vol. 18, No. 4 (September 1966), pp. 17–31.

39. See, for example, United Nations, *Multinational Corporations in World Development* (New York: United Nations, 1973), ST/ECA/190 1, pp. 85–95.

40. Quoted in Schatz, *op. cit.*, p. 261.

41. O. O. Soleye, 'The politico-economic position of multinational corporations: a Nigerian example', in Widstrand (ed.), *Multinational Firms in Africa*, *op. cit.* pp. 199–205.

42. Supply has often outstripped demand in the raw materials industries and even the threat of surplus weakens the developing-country bargaining position. In periods of surplus the MNEs tend to place primary reliance on 'safe' sources in developed countries and in those developing countries which work out favourable supply agreements. Such agreements, by differentiating the interests of the developing countries, tend to weaken their bargaining power. For a succinct discussion of this and other sources of MNE bargaining strength in extractive industries, see Vernon, *Storm*, pp. 256–258.

43. An abortive attempt by the government of Zambia to diversify foreign participation in copper mining provides an illustration. The government awarded prospecting licences to a Japanese–American joint venture. However the Japanese firm (Mitsui) soon lost interest, and the Americans concerned were 'quick to speculate' that Mitsui had been dissuaded by the two MNCs already established in Zambian copper mining, Anglo-American Corporation and AMAX, which both had close connections with Mitsui elsewhere. Similarly Zambian government attempts to integrate and rationalize parallel purchasing, marketing and other operations of the Zambian subsidiaries of Anglo-American and AMAX were allegedly frustrated by the parent companies, despite Zambian government holdings of 51% in both subsidiaries. Each parent wanted its Zambian subsidiary to deal in so far as possible with other affiliates within its own corporate family. These examples are drawn from Richard L. Sklar, *Corporate Power in an African State: The Political Impact of Multinational Mining Companies in Zambia* (Berkeley: University of California Press 1975), pp. 72–73 and 187. This insightful and careful book is perhaps the best study so far published on multinational operations in Africa.

44. The direct increase in domestic output occasioned by the foreign investment may be small, particularly when many intermediate inputs are imported; this might be partially or more than fully offset by reductions in production by indigenous firms that lose customers or scarce inputs to the foreign investors. From any net increase in output that may remain, the foreign firm's profits and fees must then be subtracted to find the contribution to national product or national income. If profits and fees are high, this contribution might well be negative. Schatz, *op. cit.*, p. 262. See also J. Ilett, 'Inducements for industrial development: when are they worthwhile?', *Yorkshire Bulletin of Economic and Social Research*, Vol. 19, No. 2 (November 1967), p. 105.

45. Such revenues are lost if the activity would otherwise have been undertaken by a domestic, tax-paying firm.

46. See, for example, Sayre P. Schatz, 'Crude private neo-imperialism: a new pattern in Africa', *Journal of Modern African Studies*, Vol. 7, No. 4 (December 1969).

47. Gerald K. Helleiner, 'International technology issues: Southern needs and Northern responses', in Jagdish Bhagwati (ed.), *The New International Economic Order*, *op. cit.*, p. 303.

48. Paul P. Streeten and Sanjaya Lall, *Evaluation of Methods and Main Findings of UNCTAD Study of Private Overseas Investment in Selected Less Developed Countries* (United Nations, TD/b/c.3/111, 1973). When one goes beyond relatively narrow economic measures, which are the focus of this paragraph, and considers political and social consequences, the costs and benefits of foreign investment are extremely difficult to estimate, but some critics of MNEs believe that the negative consequences are massive.

49. 'The host country has a variety of choices. It can borrow the capital, hire managers, and acquire a licence; use domestic inputs for some components of the 'package'; or use consulting services, management contracts, importing houses or banks'. Paul Streeten, 'Multinationals revisited', *Finance and Development*, Vol. 16, No. 2 (June 1979), p. 41. See also Gerald K. Helleiner, 'Transnational enterprises in the manufacturing sector of the less developed countries', *World Development*, Vol. 3, No. 9 (September 1975), p. 645: 'Technology may be supplied by a large foreign firm to less developed countries in a variety of ways . . . [besides providing it through a wholly-owned subsidiary or a joint venture, the firm may] license a firm in which it has no equity at all, or sell equipment, management or training programmes, or erect plant on a turn-key basis, all on a thoroughly arms'-length basis.' Besides technology other facets of the usual direct investment package may also be provided in various ways.

50. Cohen concluded that local capabilities were sufficient to have carried out the direct foreign investments which he studied in Singapore, South Korea and Taiwan with positive national income effects at least as great as those yielded by the foreign investment. Benjamin Cohen, *Multinational Firms and Asian Exports* (New Haven: Yale University Press, 1975), pp. 112–119, cited in Gerald K. Helleiner, 'Transnational enterprise, manufactured exports and employment in less developed countries', *Economic and Political Weekly*, Vol. 11, Nos. 5–7 (February 1976), p. 289.

51. Achievement of this critical mass is facilitated by favourable circumstances, for example: economic prosperity in the home country (which probably in-

creases the ability and willingness of the MNE to make concessions); balance-of-payments ease in the home country (which might encourage greater governmental co-operation with MNE concessions); the development of a world climate of opinion which is more supportive of poor-country aspirations; a growing network of mutually encouraging and informative international interrelations among host nations.

52. Penrose believes that 'less developed countries often have *more* scope to take independent and radical action with regard to multinational corporations than do governments of the larger industrialized countries. Retaliation is more difficult . . . . [Moreover] the less developed countries are often less inhibited by their own attitudes and by respect for the prevailing traditions and rules of international economic behavior, holding either that those traditions and rules were made in the interest of the industrial powers and have no moral claim to international acceptance, or that their own history of deprivation justifies exceptions in their favour.' Edith Penrose, 'Ownership and control: multinational firms in less developed countries', in Gerald K. Helleiner, *A World Divided*, *op. cit.*, p. 151.

53. Helleiner, 'Transnational enterprises in the manufacturing sector . . . ', *op. cit.*, p. 641. also p. 644.

54. Raymond Vernon, *Sovereignty at Bay: The Multinational Spread of U.S. Enterprises* (New York: Basic Books, 1971), p. 54. The reference here is to foreign raw materials enterprises, but the process obtains more generally. See also Walter Chudson, 'Africa', in H. R. Hahlo, J. Graham Smith and Richard W. Wright (eds.), *Nationalism and the Multinational Enterprise: Legal, Economic and Managerial Aspects* (Dobbs Ferry, NY: Oceana, 1973), p. 148.

55. For example, when the Zambian government's desire to initiate local fabrication of its copper was opposed by the two multinational mining companies operating there, Zambia turned to an outside consortium of three American and Swedish firms. The government used this consortium 'as a means of leverage to move the mining groups from an obstructive to an accommodative position', and after complicated negotiations a fabricating company was formed which was owned by all five companies and the Zambian Government. Sklar, *op. cit.*, pp. 93–95.

56. For use in developing countries, for example, Philips NV of the Netherlands developed a small-scale-production unit which was both low-cost and more labour-intensive than its typical European unit. The Italian firm Oltramare designed specifically for use in Tanzania a highly successful mechanical cashew-nut processing plant, which 'radically improved the position of Tanzania in the [world] cashew-nut market . . . '. Chudson, *op. cit.*, pp. 152–153.

57. This has been one of the functions of Nigeria's Indigenization Decree, which mandated full or partial indigenous ownership in a wide range of economic activities. Though this decree, the 'Government has . . . taken the first step not necessarily towards replacing multinationals but towards directing them to areas where they are most needed . . . . Nigeria has been careful in taking over multinational corporations because it is believed that there is still room for the expertise and technology that they can provide.' United Nations, *Hearings*, *op. cit.*, pp. 158–159. This writer observed a smaller-scale process of this nature in Tanzania in the late 1960s. With nationalization of existing operations, some Asian entrepreneurs who stayed on saw their future in terms of continually innovating new activities, profiting thereby, and again being nationalized at prices which included some reward for successful entrepreneurship.

58. Vernon, *Sovereignty*, *op. cit.*, p. 106.

59. Sklar, *op. cit.*, pp. 34–42.

60. Schatz, *Nigerian Capitalism*, *op. cit.*, pp. 58–61; United Nations, *Hearings*, *op. cit.*, p. 162. Nicholas Balabkins, of Lehigh University, has a thorough study under way of Nigeria's indigenization of ownership.

The possibilities of indigenizing ownership are quite varied; for example Yugoslavia retained full ownership of an MNE-established enterprise that was to produce parts and components for the MNE and used these parts as payments for production, training and marketing assistance from the foreign firm. Chudson, *op. cit.*, p. 150.

61. Sklar, *op. cit.*, pp. 144–148. This is related to Sklar's highly interesting thesis of an MNE 'doctrine of domicile', pp. 182–188.

62. 'There may have been a time in international affairs when foreign producers of raw materials anticipated that a bargain with a government, once made, would not come unstuck. Today the opposite is generally assumed.' Vernon, *Sovereignty*, *op. cit.*, p. 46.

63. Diaz-Alejandro, *op. cit.*, p. 324. In Tanzania, for example, despite nationalization (accompanied to be sure, by adequate compensation), foreign companies continued to collaborate with government in joint ventures, management contracts and in other ways. Neersø, *op. cit.*, pp. 178–179.

64. Streeten, 'Multinationals revisited', *op. cit.*, p. 39.

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# Erratum

Delasanta, David W. and Robert P. Morgan, 'The choice of sugar cane processing technique for Pakistan', Vol. 8, No. 9 (September 1980), pp. 725–739.

On p. 739, the reference to D. J. C. Forsyth *et al.*, 'A report on a pilot investigation of the choice of technology in developing countries' (University of Strathclyde, David Livingstone Institute of Overseas Development Studies, 1975) is incorrect.

The sole author of that report is in fact James Pickett, the Director of the David Livingstone Institute. There is no formal or substantive reason for attributing authorship, even partially, to D. J. C. Forsyth. The editors extend their apologies to Mr. Pickett and Mr. Forsyth for this inadvertent error.

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# Perspectives and Problems of Development in Sub-Saharan Africa

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**Summary.** – This paper analyses the initial conditions for development facing post-colonial African nations, outlines alternative development strategies followed by different groups of countries and assesses the consequences for growth and poverty alleviation. On the basis of this diagnosis the paper outlines a number of policy priorities for the future including greater research, extension and infrastructure support for smallholder agriculture, an improvement in the overall structure of incentives in favour of agriculture, a more realistic urban formal sector wage structure to reduce rural–urban migration and foster a more internationally competitive manufacturing sector, and greater emphasis on surplus generation through government budgets and parastatal enterprises.

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## 1. THE HISTORICAL LEGACY

A good development economist should also be something of an applied historian of economic thought (Myint).

### (a) *The pre-colonial setting*

The researches of the Leakey family and others indicate that man's origins may be found in East Africa. But after the species had spread to other continents, sub-Saharan Africa was increasingly isolated from land masses to the north and east by the spread of deserts across Sahara and Arabia. Toynbee (1964) has observed, 'Geography kept sub-Saharan Africa out of the history of civilization . . . The desert in the north, the falls at the mouth of the rivers which prevented navigation, isolated Africans and deprived them of the mingling of peoples which produces civilization.' The 15th century (A.D.) witnessed the first major contacts between sub-Saharan African societies and the mercantilist European nations, which were destined to leave their colonial imprint on Africa. It is a good point of departure to sketch some salient aspects of contemporary African economic and social organization and outline their evolution under the influence of growing commercial and political contact with Europe.

The overwhelming majority of Africans were engaged in subsistence farming. As most soils of tropical Africa tended to be light, low in plant nutrients, easily leached by heavy rains and scorched by the sun, the farmers adjusted to these natural deficiencies by resorting to shifting cultivation, usually based on slash-and-burn techniques. In most parts of the savannah and bush country shifting cultivation was facilitated by the virtually limitless supply of land. The system discouraged permanent individual rights in land. When communities moved, individual farmers could stake out their new fields with family labour as the chief defining constraint. Communities were typically delineated by kinship. A political concomitant of shifting cultivation was that chiefship tended to be over people rather than land (Goody, 1971). With one or two prominent exceptions (Ethiopia for example), European-style feudalism based on land-scarcity was unknown.[1] In addition to this dominant mode of farming, other types of agriculture were practiced by nomadic herdsmen, like the Somali and Masai.

While the agricultural subsistence economy was dominant, commerce was nourished by, and in turn nurtured, the West African medieval empires of the Niger bend (such as Ashanti, Dahomey, Mali, Benin), which flourished *ca* 14th–19th centuries. Some of these empires

* The views and interpretations in this document are those of the author and should not be attributed to the World Bank, to its affiliated organizations, or to any individual acting on their behalf.

were founded on the long-distance trade which took gold, ivory and slaves from West Africa across the Sahara to the Maghreb and Europe in return for salt, cloth and beads. Profits from the trade not only sustained some of the states, but also nurtured craftsmen (jewellers, weavers, iron-workers, potters, masons, carpenters), who met the local needs of the better-off merchants and nobility. There was, however, no universal link between the growth of commerce and the rise of structured state systems (Duignan and Gann, 1975). Sometimes, as in Benin, the rulers derived power and profit from their control over long-distance exchange. At other times state power relied less on the cash nexus and more on protection offered their subjects, favours and a variety of religious, judicial and political services. Conversely, commerce did not always require strong state systems. Furthermore, while commerce was usually impelled by economic motives, kinship and tribal affiliations often influenced its course more than pure market principles. Finally, while the trade in commodities was responsive to supply and demand, land and labour were seldom allocated through markets. From the viewpoint of long-run economic development, the West African long-distance trade suffered from one grievous handicap: it relied much too heavily on wasting assets like gold, ivory and slaves, and very little on production.

In comparison with contemporary Europe and Asia, one aspect of sub-Saharan African societies is sharply silhouetted: their technological backwardness. Some key examples will suffice. One Bronze Age invention which was prevalent throughout Eurasia, the plough, had not yet reached sub-Saharan Africa (except Ethiopia). This meant animal power could not be harnessed to farming. More generally, animal traction was little used in sub-Saharan Africa. In part this was due to the high incidence of fly-borne, draft-animal-killing diseases like trypanosomiasis. But it is also attributable to a more general lacuna in adopting the wheel to its numerous potential uses, including harnessing wind and water power and as an integral element in various irrigation devices. While the technique of iron-smelting is known to have reached Meroe in Northern Sudan as early as the 6th century B.C. and to have spread to other parts of Africa subsequently, the level of craft skills in iron-working *ca* 16th–18th centuries was not yet adequate to localize the manufacture of muskets brought by the Europeans (this contrasts with experience of contemporary Japan and Sri Lanka). This was to place Africans at a serious disadvantage in their conflicts with European encroachment (Goody, 1971).

The advent of European mercantilist interests on the west coast of Africa in the 15th century had profound consequences. First, the existing overland trade links were gradually supplanted, in relative significance, by the European-controlled maritime commerce linking the West African coast to Europe, as well as points on the West African coast to each other. In part, this reorientation of trading patterns was due to the economic superiority of the new seaborne commerce over the land routes. But sometimes it was helped along by the use of superior force to disrupt the existing trade route.[2] Thus, early in history, a pattern was set which would inexorably strengthen the economic links between Africa and Europe, while inducing the gradual atrophy of intra-African economic ties (Rodney, 1972). Second, during the 16th and 17th centuries the growing influx of European manufactures, especially textiles, pre-empted the market for local African craftsmen and may well have induced a situation of 'technological arrest' amongst the local fledgling manufacturers (Rodney, 1972).[3]

Probably, the most profound immediate consequence of European mercantilism was the massive boost it gave to the slave trade. Slavery had existed for many centuries and in many forms.[4] The pre-15th century growth of long-distance commerce and associated gold-mining had undoubtedly increased slavery. But pre-colonial Africa had never developed large-scale plantation economies. The European conquest of the New World led to the institution, in the Americas and West Indies, of large tropical-crop plantations (sugar, tobacco, cotton, coffee), which were sustained by one of the most massive and cruel forced migrations of recorded history. Anywhere between 10 and 15 million captives may have been shipped across the Atlantic in the course of the four centuries during which the trade flourished (Duignan and Gann, 1975; Kamarck, 1971). Uncounted millions more lost their lives in slave raids and during transshipment. Aside from the excruciating human cost to those directly afflicted, the far-reaching consequences of the slave trade have been summarized thus by one experienced and sober analyst of Africa (Kamarck, 1971, p. 8): 'It drew off from the continent human beings at their most productive ages. Worse still, it encouraged tribe to fight tribe and encouraged conflicts within tribes. Finally, and perhaps most importantly, any advantages that Africa derived from contact with the rest of the world – the learning of some skills, the introduction

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of new foods such as maize and manioc – were more than offset by the slave trade's plunging vast stretches of Africa into anarchy. Whatever else economic development requires, it does need a basic minimum of personal security.' In addition this vast expansion of the slave trade retarded the evolution of African wage labour and labour-enhancing technical innovations.

The final consequence of Europe's 15th-century coming to Africa was that it led, step by inexorable step, to the extension of European military and political domination over the continent, culminating in the 1880s 'scramble for Africa', when the continent was comprehensively carved up among the rival European powers. Though the volume of trade increased gradually after the 15th century, European involvement in sub-Saharan Africa until the 1870s remained limited to the peripheries[5] (except for the migration to the Cape Colony which began in the 17th century). Europeans controlled small coastal, trading enclaves through a form of 'informal empire' based on gunboats and consuls. In the 1870s a number of developments precipitated a much keener imperial competition for territory. A vast new market for palm-kernels was opened by a French scientist's discovery of margarine. In the Cape Colony the Kimberly vein of diamonds was discovered. The steamship came of age as a low-cost, long-distance carrier of bulk commodities, and was adapted for inland river navigation. In East and Central Africa the European explorations in quest of the source of the Nile opened up new horizons for adventure and annexation. Finally, imperialism became a rallying cry in the domestic politics of European nations, thus lending support to the European merchant houses seeking greater political expansion to consolidate their expanding commercial interests against rival European traders and African brokers. The marriage of political expediency and commercial gain was exemplified in the large, new, monopolistic, chartered companies which attempted to fuse commerce and government at no cost to the imperial nation.[6] While many of these companies failed to make much profit for most of their shareholders (though company officials were often enriched), they succeeded in their primary objective of bringing vast tracts of the African hinterland under European imperial domination.

### (b) *The impact of colonialism* (1890–1960)

The early years of colonial rule were characterized by a mixture of brutal application of force and the founding of the infrastructure of modern economic states. In their territorial expansion in quest of commercial opportunities and minerals the European chartered companies and concessionaries, in collaboration with their imperial mother-nations, fought bloody battles of subjugation. Nor did they hesitate to use forced African labour in exploiting the newly-opened mines, collecting and transporting ivory, rubber and timber, and building the great new railways. On the other hand, colonial rule put an end to slavery and slave-raiding. And the railways and roads did get built. Though sometimes they were built for strategic purposes, they inevitably opened up vast tracts of African hinterland and gave an enormous fillip not only to the European-controlled mining, but also to African commercial agriculture.[7] Given the earlier paucity of wheeled transport, and the susceptibility of pack animals to fly-borne diseases, the impact of railways and lorries on African economic development was enormous (however, there were some adverse consequences in the form of a more rapid spread of communicable diseases, including some European imports that were new to Africa).[8] New crops, like cocoa, sisal and cotton, were introduced and propagated (Yudelman, 1975). A start was made with public health facilities to control the effects of diseases affecting man and livestock. Schools were built, with the missionaries taking the lead. Above all, once the colonizing conflicts had been fought to their conclusion, the system provided the minimum of public security necessary for economic development. In sketching some of the lasting elements of the colonial imprint it is useful to deploy Kilby's (1975) distinction between two types of experience:

(i) the 'white-settler colonies' of East and Central Africa;[9] and
(ii) the peasant economies of West Africa.

#### (i) *The 'white-settler colonies'*

There are at least three major distinguishing characteristics of the economic evolution of the 'white-settler' colonies, as exemplifed by Kenya and Southern Rhodesia. First, the development of African commercial agriculture was retarded, at least until the early 1950s, when the policy was reversed. European settlers, in conjunction with the colonial administration, deployed policies of land alienation (and the associated concept of 'African reserves'), discriminatory orientation of government research, credit and extension services, manipulations of prices and markets, and outright bans on African farming of certain crops, to develop and maintain the

profitability of European farms. The 'African reserves' served as pools of wage labour to the European farms. Africans were induced to work (after forced labour had been phased out by the end of World War I) through the need to pay taxes levied on them and the concomitant denial of cash farming opportunities. In Kenya, Africans were prohibited from growing coffee until 1948–1949, and dairy cattle were strongly discouraged by withholding essential veterinary services until 1955 (Heyer, 1976).[10] It was only in the 1950s that the restrictions on African farmers were lifted and state support shifted in their direction (in the form of the Swynnerton Plan). The result was a rapid growth in African agricultural output. By way of contrast, in Uganda, where the settler farming community was much less influential, African farming of cotton was encouraged from the early 1900s. Here, the discriminatory power of the state was aimed more at the Asian traders (the middlemen between the African producers and the European ginners), who responded by switching from trade to ginning and other industrial activities (Kilby, 1975).

Second, local industry began much earlier in the settler colonies than in the peasant economies of West Africa. One general reason seems to have been the pro-industrialization influence of a resident European population which possessed the necessary technical, managerial and entrepreneurial skills, the requisite contacts with home-based firms and the political leverage to influence the colonial administration to grant support and protection to nascent industrial activities. There were, of course, also individual factors like the Ugandan Asian reaction to trading restrictions (noted above) and the pioneering industrialization role of the British South Africa Company in Southern Rhodesia (Kilby, 1975). In these economies, where local industry (albeit controlled either by Europeans or Asians) had an early start, the disruption of trade caused by World War II gave a major import-substituting boost to industrialization.

Third, the settler colonies were generally characterized by a more venerable tradition of state intervention in the economy. From the earliest years of British colonial rule in East and Central Africa restrictions were imposed on the number and nationality of traders allowed to operate in specified areas. State monopolies over export crops were set up. Restrictions were imposed on who might sell what to whom. Industrial licensing, currency restrictions, trade controls and tariffs proliferated. World War II greatly increased the variety and intensity of the colonial administration's intervention in these economies. As Bauer (1975, p. 645) notes:

> From the 1930s to well into the 1950s, the major beneficiaries of trading and processing in East and Central Africa were expatriates . . . The cost was invariably borne by the would-be entrants excluded from these activities, and by the unorganized farmers and consumers whose terms of trade were worsened . . . Under African conditions, the familiar effects of such a maze of restrictions were pronounced: fragmentation of the economy; restriction on the movement of people and commodities; retardation of the spread of the exchange economy; obstruction of the establishment and extension of low-cost producers; provocation of political tension; retardation of capital formation and the emergence and extension of corruption.[11]

(ii) *The peasant economies of West Africa*

The outstanding differentiating characteristic of the West African peasant economies was the lynch-pin role of African farmers throughout the colonial period. Except for a few plantations in the Ivory Coast, Liberia and Nigeria, the market-oriented production of both export crops and foodstuffs was in the hands of African peasants. This had three major economic consequences. First, by the mid-20th century the average West African peasant from the Gold Coast (Ghana), the Ivory Coast, Nigeria or Senegal enjoyed a much higher standard of living than his counterpart in East and Central Africa (except for some regions of Uganda). Second, this long history of commercial farming provided the experience necessary for large numbers of Africans gradually to move into wholesale and retail trade, transport and various artisan activities. Third, amongst the African farming population there evolved a much higher degree of economic differentiation than in East and Central Africa.

While the colonial period was marked by a prolonged agricultural boom, industrialization lagged. The share of manufacturing in national product has been estimated to be as low as 0.6% in 1950 (Nigeria) and 0.4% in 1954 (the Gold Coast), compared to 8.9% in Kenya and 7.2% in Uganda in 1954 (Kilby, 1975, p. 475). The buoyant agricultural record meant that lack of domestic demand could not be a plausible explanation. The answer adduced by economic historians to account for the situation is the highly monopolistic character of the export–import trade in these economies. As early as 1930, four companies accounted for 60% of the export–import trade.[12] The monopolistic position was strengthened and preserved through to the mid-1950s and was successfully deployed to discourage any local manufacturer from

hiving off any significant share of the market. The dominant interests of the export–import firms were strengthened by interlocking connections with freight lines and banking houses (Kilby, 1975). Nor was there any white-settler population of consequence to exert the pro-industrialization supply-side pressures which existed in East and Central Africa. After the mid-1950s there was a massive spurt in industrialization, when the surge in imports broke down the old oligopolistic barriers around the import trade and induced a series of market-protecting local industrial investments by the previously dominant trading firms (Kilby, 1969, 1975).

State intervention in the West African economies took a quantum leap with the outbreak of World War II. The most influential instruments were the state export monopolies. Initially introduced to avert the price collapse threatened by war-induced shipping scarcities, these marketing boards soon became permanent and powerful instruments of agricultural taxation, notwithstanding the offical lip-service paid to their price-stabilization aims. The boards had far-reaching political and economic consequences extending well beyond the colonial era. The massive rents extracted by some of these boards soon became targets for corruption and were used, in turn, to finance overmanning, political activities and other parasitic tendencies (Bauer, 1954, 1975).

(iii) *World War* II *and after*

World War II witnessed an enormous increase in the responsibilities and roles of government in the Allied nations of the West. This trend found reflection in much more actively development-oriented policies of the colonial administrations. This was the period when 'colonial planning' effectively took shape as a result, generally, of a mixture of efforts by the local (or federal) authorities to express their needs in a more explicit form, and by the metropolitan powers to integrate capital outlays for overseas territories in their own national plans. This was particularly true for the French colonies and somewhat less so for the British. Furthermore, financial aid in the former was always exclusively in the form of grants and quasi-grants, whereas loans, mostly on soft terms, were the rule in the latter. In both cases net financial flows were decidely from the centre to the periphery, but situations varied and local expenditure was sometimes financed mainly through local taxation. Investment was mainly oriented toward infrastructure, especially highways and ports. At the same time the welfare of Africans became a more explicit concern of colonial policies. Expenditure on African-oriented agricultural support services increased and besides a few large, ill-conceived, and widely publicized attempts at large-scale mechanization (the Kongwa scheme in former Tanganyika, the Casamance groundnut scheme in Senegal), there were serious though unequally successful efforts at organizing African farmers at village level for productive and distributive purposes ('co-operatives', 'sociétés de prévoyance', 'paysannats indigènes' etc.). Also, the state surpassed missionaries in social welfare expenditures on schools and hospitals although these continued to be located mainly in urban areas. In the 'white-settler colonies', the bulk of state interventions continued to benefit disproportionately the most influential local group, namely the colonial expatriates in farming, commerce, industry and government.

The post-war era was also one of intensified state intervention in trade and money. Typically, there was the increase in licensing, controls, marketing boards etc., that we have observed earlier. There was also a more formal implementation of 'imperial preferences' of various kinds, especially in the Franc zone area. This resulted in trade arrangements especially advantageous to exports from the 'métropole' in terms of the degree of tariff preference accorded to their exports of manufactures, and beneficial to the colonies in terms of stable prices and assured-markets for their primary products. The system eventually entailed some painful, though generally gradual, adjustments to world market conditions in the first years following independence. But it also had favourable lasting effects, notably among former French colonies, in the form of regional and subregional common markets and common currency arrangements that have been instrumental to this day in facilitating movement of goods and people alike, and minimizing balance-of-payments problems among members that have adhered to the Franc area system.

### (c) *Initial conditions at independence*

Most of the sub-Saharan African countries attained political independence in the late 1950s and early 1960s. As a generally applicable approximation 1960 is the watershed year. What were the economically salient features of the legacy these countries received at independence? This subsection attempts to sketch an answer.

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(i) *Natural resources*

The majority of these countries were blessed with relatively favourable arable-land-to-population ratios at independence. However, the quality of land was typically poor because of the interactions of topography and climate. In about three-quarters of sub-Saharan Africa rainfall is scanty. Where rainfall is bountiful, year-to-year fluctuations are great, and the intra-season pattern frequently uneven and unpredictable; both aspects hinder rainfed agriculture. Across most of sub-Saharan Africa soils are derived from old acid parent rock which is poor in calcium and plant nutrients. And if green cover is removed, the high heat of the tropical sun and/or heavy spasmodic rainfall easily threaten the thin layer of humus on which plant life depends. When that happens the soils readily turn into infertile laterite (Kamarck, 1971, pp. 129–130). There are, of course, significant exceptions to this endowment of poor soils, in the shape of the rich volcanic soils in some East African highlands and the alluvial clays of the coastal plains. Finally, tropical heat and absence of frost permit life and reproduction of bacteria, insects and plants to go on throughout the year, thus enormously complicating the problems of pest and weed control. In Karmarck's words (1976, p. 17), 'The great executioner of nature, winter, is absent'.

The tropical climates of sub-Saharan Africa also constrain human endeavour. First, the high heat and humidity directly engender lassitude, and perhaps even loss of mental initiative.[13] Second, tropical climates are very hospitable hosts to a formidable range of parasitic and infectious diseases, which exact an enormous toll in morbidity and death (once again, the absence of winter, as a natural killer of vector-borne diseases, is a significant factor). The most well-known of these scourges are bilharzia, malaria, riverblindness, sleeping sickness, parasitic worms, yellow fever, cholera and leprosy.

Minerals were an important magnet drawing colonialists to Africa. But their recent and foreseeable role in economic development is limited to a handful of countries where the known mineral resources are concentrated: Zambia, Zaire, Botswana, Gabon, Sierra Leone and Southern Rhodesia. And while minerals have provided large flows of rent income to these countries, their exploitation has also been associated with massive distortions of the domestic wage structure, which have tended to retard the development of non-mineral sectors.

(ii) *Human resources*

For most sub-Saharan African countries the colonial heritage of trained indigenous manpower was abysmally small. The rapid develop-

Table 1. *Education indicators for* 1960

| | Enrolment in primary school as % of age group | Enrolment in secondary school as % of age group | Enrolment in higher education as % of population aged 20–24 |
|---|---|---|---|
| Selected African countries | | | |
| Ghana | 59 | 3 | (.) |
| Guinea | 30 | 2 | .. |
| Ivory Coast | 46 | 2 | (.) |
| Mali | 7 | 2 | .. |
| Ethiopia | 5 | 1 | (.) |
| Kenya | 47 | 2 | (.) |
| Malawi | 63 | 1 | .. |
| Sudan | 25 | 3 | (.) |
| Tanzania | 24 | 2 | .. |
| Zaire | 60 | 3 | (.) |
| Zambia | 48 | 1 | .. |
| Other countries | | | |
| Brazil | 95 | 11 | 2 |
| India | 41 | 23 | 2 |
| Pakistan | 30 | 11 | 1 |
| Philippines | 95 | 26 | 13 |
| Thailand | 136 | 8 | 2 |
| Turkey | 75 | 14 | 3 |

Source: *World Development Indicators*, 1978, Table 18.
Note: .. indicates not available; (.) indicates less than 0.5%.

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ment of schooling facilities after World War II had ensured that the primary-school enrolment ratios of 1960 were not dramatically lower than in other developing countries (Table 1). But the record on secondary and higher-level education was much more stark. As for Africans with experience in administrative, managerial, financial and technical pursuits, the cadres were extremely thin.

Quite apart from formally trained manpower, the indigenous populations of the newly independent African states were endowed with very limited entrepreneurial heritages. In East and Central Africa, commerce, finance and industry had been almost exclusively the preserve of Europeans, Asians and Arabs. Though the latter two were frequently discriminated against (socially and economically) by the Europeans from the imperial nations, from the vantage point of African nationalists they were usually perceived as being closely associated with the colonial power structure [see, for example, Mamdani (1976) on Uganda]. Consequently, the post-colonial potential of these entrepreneurial, ethnic minorities has been bedevilled by political uncertainties. African participation in industry, in particular, was almost non-existent. After 60 years of colonial rule the most 'advanced' economies of Kenya, Uganda and Southern Rhodesia boasted not one African-owned-and-operated enterprise with more than 10 employees.

The entrepreneurial heritage in some of the West African economies was more promising. The long exposure of Africans to commercial farming and then commerce had begun to spawn significant numbers of small African enterprises engaged in the craft trades of tailoring, woodworking, goldsmithing and motor repair, as well as more mainstream manufacturing activities like baking, printing, bottling, sawmilling, soapmaking and even manufacture of electric motors. The heritage was, of course, unevenly distributed with Nigeria, Ghana and Senegal leading the field (De Wilde, 1971). Studies of backgrounds of these African entrepreneurs point up the importance of a family history of exposure to and participation in the non-farm cash economy, thus supporting the presumption that trading and artisan activities provide important (perhaps necessary) learning opportunities in the transition from peasant agriculture to industrial entrepreneurship (Harris, 1971; Rowe, 1970; and Kilby, 1975). Large- and medium-scale enterprise remained a preserve of European conglomerates and ethnic minorities such as Levantines, Greeks and Asians; these minorities were also important in trade and small-scale manufacturing enterprise.

(iii) *Economic structure*

At independence, almost all the sub-Saharan African nations were small open economies with foreign trade accounting for 20% or more of national product. Typically the export trade was characterized by heavy dependence on a few primary commodities. Except in the mineral-producing countries, these primary commodities were agricultural items like coffee, cocoa, tea, palm-oil, cotton, oilseeds and sisal. There were few inter-industry links, since the overwhelming bulk of the processing of the exportable agricultural surplus had been conducted in the imperial, importing nations. Barring the mineral producers, agriculture was the dominant sector, accounting for 40–60% of national product, with half or more of value-added being generated in subsistence activities, which provided means of livelihood to the majority of the population. The modern infrastructure of railways, roads, banks, power and water utilities and commercial networks buttressed and serviced the links between the productive cash economy (commercial farms, plantations and mines) and the former metropolitan nations which purchased its produce in return for manufactured producer and consumer goods necessary for the sustenance and expansion of the local monetized economy. Urban communities were small, but usually growing rapidly.[14]

Aside from this pattern of physical infrastructure and commercial/financial links, colonial rule bequeathed two other economic characteristics that were to prove significant for subsequent development. First, at the end of their day the colonial administrations loomed large in the economic life of these nations, not only in national accounting terms, but also in the scope of activities they controlled through legislation, administrative fiat and extra-government public agencies like the marketing boards. Second, the middle and upper levels of wage and salary scales of the colonial public sector were designed to facilitate recruitment from the colonial nations and were thus set according to prevailing payscales in those countries; they bore no sensible relationship to the average standard of living in the African nations. Thus, it was commonplace to see ratios of 30 or 50 to 1 between top public service salaries and average (or legal minimum) wages of unskilled labour, which was in marked contrast to the ratios of 4 or 5 to 1 to be found in Great Britain or the United States (Kamarck, 1971, p. 74). The in-

appropriate structure of public incomes was compounded by policies with regard to perquisites such as housing and car subsidies. This sort of inappropriateness also spilled over into excessively high design standards for public services such as water, lighting, health and housing. In part this reflected the transplant of colonial standards; it may also have been due to the absence of local 'intermediate technology' practices, itself the result of the earlier history of 'technological lag', cited previously.

(iv) *Institutional heritage*

Perhaps the strongest and most lasting institutional bequest of colonialism was the concept and practices of a nation state, which transcended ethnic and kinship ties. This is not to belittle the role of the African nationalist movements which helped to bring about independence, but rather to recognize that the crystallization of such nationalist sentiments and political parties were spurred in many cases by the fact of colonial rule.[15] It is also to recognize that the geographic boundaries of the sub-Saharan African states were usually the accidents of colonial history, and frequently not congruent with any indigenous cultural and linguistic demarcations. Nationhood, in the form of the apparatus and practices of a modern state, came to Africa very fast and created formidable new challenges to expand traditional loyalties, which tended to be limited to kinship groups and tribes, to embrace the nation. In this sense the advent of statehood frequently preceded the crystallization of a full-blown national consciousness. This had important consequences for the functioning of modern economic institutions, pre-eminent among which was the government: to the extent moral loyalties and allegiances commanded by tribe and kinship group exceeded those extended to public institutions, to that extent the workings of the latter were swayed more by these traditional ties than by the assumptions of national, 'professional' or institutional loyalties upon which these institutions were founded. Visitors to some countries of Africa are impressed by the volume and prevasiveness of bribery and corruption. But as Andreski (1968, p. 101) has pointed out, much of this can be explained as 'solidaristic graft', where the individual undertakes illegal actions to conform with the moral obligations of benefiting his kinship group, whether in the form of allocating licences, public jobs, or other forms of patronage.

Andreski (1968) has gone much further and argued that the hurried onset of statehood and very rapid urbanization has severely diluted the traditional (largely tribal and in rural settings) moral restraints without there being time enough to nurture new supratribal loyalties and obligations to the institutions of the modern state, thus leading to a situation of 'moral disorientation', conducive to unrestrained and highly individualistic pursuit of wealth and power through any means at hand. Indeed, he sees some of the modern African state apparatuses as not much more than arenas where protagonists compete for private enrichment through the manipulation of administrative rules and powers of government. This is probably too extreme a view. It may be more appropriate to recognize that since independence there has been a race to instil and nurture the notions of supratribal loyalties and ethics before customary webs of obligation won out (or crumbled too early), a race which may have been temporarily lost or won in some countries, but which has almost nowhere been run to a finish.

Colonial rule not only left behind the large new apparatuses of modern states, but also a heritage (especially from the last two decades of imperial rule) of public intervention to solve perceived problems of the populace. To some extent the latter-day paternalism of colonial administrations bred, amongst the affected populace, a syndrome of dependency toward the state in respect of free (or subsidized) services such as schools, hospitals, water, sewerage, roads, lighting and housing. While these public benefits had been mainly limited to urban communities during colonial times (not incidentally because that is where most of the imperial rulers lived!), with independence the expectation of such benefits spread far wider to the much more numerous rural populations. This 'consumptionist' approach to public services was a colonial heritage with major post-colonial consequences.

## 2. DEVELOPMENT POTENTIAL, STRATEGY AND EXPERIENCE

### (a) *Initial conditions and development potential*

Before undertaking a summary review of the development policies and experiences of the post-independence period, it would be useful to sketch some generalizations regarding the manner in which the heritage of initial conditions affected the development potential and policy choices of the sub-Saharan African countries. Some of these interactions will be explored more fully later in this paper. At this point only some rather bald assertions (in some cases,

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speculations) will be offered, the main objective of which is to buttress the intuitively plausible claim that initial conditions (which are themselves a cumulation of past history) exercise substantial influence on subsequent feasible development paths.

*First*, over large tracts of sub-Saharan Africa (especially in East and Central Africa, but also including the Sahel countries of West Africa) the relatively poor natural endowment of soils and climates and the rather skewed networks of transport, credit and extension services, which were inherited, constituted major hindrances to dynamic agricultural development. This did not mean that rapid and sustained agricultural growth could not occur, but rather that it would usually be unrealistic to expect it until investment and experience in agricultural research and extension had generated crop varieties adapted to local conditions, appropriate weed and pest control measures had been established to protect crops, and the somewhat skewed inheritance of supporting infrastructure (transport, credit etc.) broadened to facilitate the economic activity of the majority of the population. The agenda for action was particularly urgent for foodcrops for which the history of research, extension and supportive infrastructure was weak, even in the agriculture-oriented coastal economies of West Africa. Otherwise the low factor productivity in foodcrops would act as a brake on both cash crop development and industrialization (Lewis, 1977).

*Second*, though land was frequently of poor quality, its relative abundance in relation to population allowed a low-level subsistence livelihood to be reaped 'easily' (relative, say, to South Asian economies), except, of course, when stochastic scourges such as droughts or locusts intervened. This tended to ensure a high 'reservation price' for rurally located labour during the early efforts at industrialization and fostered tendencies towards 'circulatory migration' (rural → urban → rural), which inhibited the development of a permanent industrial labour force (Elkan, 1967).[16] The relatively high wages paid (which usually became enshrined in minimum wage legislation at some point) to attract and hold an urban labour force succeeded, but at wage levels which inhibited export prospects in labour-intensive manufacturing.

*Third*, the acute scarcity of African technical, managerial and administrative cadres constrained the yields on all projects and programmes and frequently confronted governments with the unenviable choice between rapid Africanization (with its attendant loss in efficiency) and heavy reliance on expatriate manpower (with its aura of neocolonialism). In addition expatriate recruitment at internationally competitive pay-scales made it politically difficult for African governments to compress the inherited (and highly distorted) public pay structure from the top.

*Fourth*, this inherited and inappropriate public pay structure exacted significant tolls in efficiency and equity.

*Fifth*, the paucity of African participation in the modern private sector, especially industry, tilted all development policy choices heavily towards étatist modes, since the newly independent state tended to be the most Africanized part of the modern economy.

*Sixth*, the typical dependence on a few primary product exports meant that these economies were subject to large fluctuations in foreign exchange earnings (due to variations in both price and output) and, in some cases, faced secular declines in their commodity terms of trade. Both features created severe problems for economic management.

*Finally*, the legacy of a 'consumptionist' attitude towards public services, noted earlier, placed heavy pressure for rapid expansion of government public services, which tended to reduce public savings, especially where the expenditure costs of increases in facilities were compounded by 'overdesigning' predilections.

### (b) *Development strategies*

In attempting to review the post-independence development policies and experience of the sub-Saharan countries, an analyst is immediately confronted by the enormous variety of policy choices and diversity of results. To do justice to this richness of experience would require a separate study of each of 40 odd countries. However, the high degree of abstraction necessary in a paper as short and broad-ranging as this one can also be a virtue, since it forces a search for the commonalities in policies and experience. It is mainly through the striving for valid generalizations that an understanding of the development process is enhanced. It is this kind of argument which must excuse the sometimes glib (and arbitrary) use of the notion 'development strategy' in this section.

To bring some kind of order to the underlying diversity two broad types of development strategy are distinguished. Before outlining their distinctive features it is as well to have the caveats up front (rather than in footnotes). First, in several countries it would be a travesty to impose the notion of a development strategy

on the congeries of *ad hoc* policies adopted. Second, in some countries where a coherent strategy existed in theory it was swiftly overtaken by the pressure of short-term internal and external events in practice. Third, hardly any country followed pure versions of either strategy; the relevant strategy was usually leavened by some elements of the other. Finally, even among the group of countries which followed a strategy consistently for an extended period, the stage at which it was adopted and the duration over which it was pursued varied widely, a fact which bedevils inter-country comparisons based on common time-periods.

These caveats notwithstanding, it is useful to distinguish between two broad kinds of development strategy pursued by the post-colonial sub-Saharan African nations. The first was characterized by some or all of the following elements:

(i) a high level of state ownership and investment in modern sector industry, agriculture, transport and commerce, combined with a penchant for public control over resource allocation in all key sectors;
(ii) rapid Africanization of middle- and high-level jobs in the economy;
(iii) a deliberate effort to 'force' the pace of industrialization and a willingness to accept the resultant skewing of the structure of incentives against agriculture; and
(iv) a dubious stance towards foreign trade and investment, which typically spawned inward-looking production priorities.

Using the first feature for a short-hand label, this strategy may be termed '*étatist*'. The second strategy boasts some opposite characteristics:

(i) relatively greater reliance on markets, especially international market forces, for guiding investment and output allocation, with state enterprises limited *mainly* to the traditional public utilities and various types of infrastructure which support the directly productive sectors;
(ii) slower Africanization of high-/middle-level manpower;
(iii) a greater willingness to let the pace and character of industrialization be governed by market forces; and
(iv) a tendency to view external trade and investment as a source of gains.

Following the earlier convention the short-hand label for this strategy is '*market-oriented*'. This label merits some qualification. Virtually all sub-Saharan African governments were highly interventionist, though the étatist ones were considerably more so, especially regarding the degree of state ownership of productive enterprises. Perhaps the crucial distinguishing characteristic of the 'market-oriented' countries was the degree to which they permitted international market forces to govern their pattern of economic specialization; étatist countries were far more prone to try and swim against world market tides.

Examples of countries which followed the étatist strategy are Guinea, Ghana, Sudan, Tanzania and Zambia.[17] Countries which have followed a more market-oriented strategy include the Ivory Coast, Kenya and Malawi.[18] Ethiopia is a country which has decisively switched strategies in the period under review: it would have been more comfortably classified in the market-oriented group prior to the 1974 revolution, when it crossed sides, so to speak.

Both in terms of the number of countries and the populations they contain the étatist strategy has been more influential in post-colonial sub-Saharan Africa. There are reasons for this. The transfer of power at independence involved, primarily, a handing over of the machinery of government. Since African participation in the private modern-sector activities was limited, the inherited state structure offered the easiest arena for fulfilling both the social aspirations of self-reliance and control over the nation's destiny as well as the individual desires for material gain through rapid career advances in an expanding public sector. Basically, the inherited weakness of the indigenous private sector, especially industry, gave an early commanding role to the new African political/bureaucratic élites, which tended to foster étatism. This tendency to view the state as the primary instrument of development was, no doubt, strengthened by the fact that in their last two decades colonial governments had played highly interventionist roles in the economic sphere. Étatism (or 'African socialism') was also fostered by the personal philosophies of key charismatic leaders like Kaunda, Nkrumah, Nyerere and Sékou-Touré. Finally, it was no accident that key elements of the preferred étatist strategy (such as a 'big-push' productive role for the state, rapid industrialization and inward-looking import-substitution) were consonant with the mainstream development theories of the 1950s and early 1960s [Leibenstein (1957); Nurkse (1953, 1959); Rosenstein-Rodan (1943); Rostow (1960); Scitovsky (1954); Singer (1950); and UN (1951)].[19]

Table 2. *Structure of output* (per cent of current price GDP at factor cost)

| | | Agriculture | Manufacturing | Transport and communications | Trade (commerce) | All other |
|---|---|---|---|---|---|---|
| Étatist countries* | | | | | | |
| Ghana | 1960 | 40.8 | 9.8 | 4.5 | 11.9 | 33.6 |
| | 1965 | 40.8 | 9.8 | 4.5 | 11.9 | 33.1 |
| | 1970 | 46.9 | 11.4 | 4.3 | 11.5 | 25.9 |
| | 1975 | 51.1 | 10.8 | 3.5 | 10.6 | 24.0 |
| Sudan | 1960 | 57.5 | 4.7 | 7.4 | 6.8 | 23.6 |
| | 1965 | 47.8 | 6.0 | 7.0 | 14.7 | 24.7 |
| | 1970 | 40.2 | 9.8 | 9.8 | 10.5 | 29.6 |
| | 1975 | 41.2 | 9.7 | 6.3 | 17.2 | 25.6 |
| Tanzania | 1960 | 57.1 | 5.1 | 6.7 | .. | 31.1 |
| | 1965 | 45.8 | 7.6 | 6.8 | 12.4 | 27.4 |
| | 1970 | 41.2 | 10.1 | 8.7 | 12.7 | 27.4 |
| | 1975 | 41.4 | 10.5 | 8.5 | 12.9 | 26.7 |
| Market-oriented countries | | | | | | |
| Ivory Coast | 1960 | 43.4 | 7.1 | 7.0 | .. | 42.4 |
| | 1965 | 35.9 | 10.1 | 8.9 | .. | 45.2 |
| | 1970 | 27.2 | 13.4 | 7.7 | .. | 51.6 |
| | 1975 | 26.4 | 14.2 | 9.7 | .. | 49.7 |
| Kenya | 1960 | 38.0 | 9.4 | 7.5 | 10.3 | 34.6 |
| | 1965 | 35.3 | 11.4 | 8.3 | 10.5 | 34.5 |
| | 1970 | 33.3 | 12.0 | 7.9 | 9.4 | 37.4 |
| | 1975 | 31.4 | 12.3 | 5.9 | 11.8 | 38.5 |
| Malawi | 1960 | 57.5 | 5.8 | 5.3 | 12.6 | 18.7 |
| | 1965 | 57.4 | 9.7 | 4.1 | 8.5 | 20.4 |
| | 1970 | 48.9 | 14.9 | 4.1 | 9.6 | 22.6 |
| | 1975 | 44.5 | 14.5 | 6.7 | 10.8 | 23.6 |

Source: World Bank data.

* Data for Guinea not available.

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### (c) *Development experience*

To keep this review of experience manageable, the analysis is restricted, in the main, to seven sub-Saharan countries listed in Tables 2–4, and 6. Three considerations have influenced the choice of countries. First, the countries in each group offered relatively strong and explicit examples of their respective strategies. Second, none of the countries earned significant rents from mineral resources during the period under review. Third, there had to be substantial research available on them.

#### (i) *Aggregate output: structure and trends*

A base period (1960) snapshot of the seven countries in Table 2 reveals the broad similarities in the structure of output. Agriculture accounted for two-fifths or more of total value-added, with, as one would expect, the poorest countries like Malawi and Tanzania displaying the higher shares. Manufacturing accounted for less than 10% of GDP in all countries. Its share was usually comparable to that of the 'transport-and-communications' sector and invariably less than that of 'trade' (commerce). There were greater differences in the disposition of national output (Table 3). Leaving aside the exceptional case of Malawi, gross national savings ranged from a low of 5.4% of market price GNP in Guinea to a high of 16.2% in Ghana. The share of gross domestic investment in GNP varied from 8.7% in Sudan to a high of 24.7% in Ghana, where the 'big-push' development policies of the Nkrumah government were well underway. With the exception of Sudan, imports of goods and non-factor services ranged between a quarter and a third of GNP, with exports averaging a little lower.

Growth rates of real GDP, agriculture and manufacturing between the early 1960s and 1975 are summarized in Table 4.[20] The data permit several generalizations. First and foremost, it is clear that on average the market-

Table 3. *Key expenditure shares* (per cent of current market price GNP)

| | | Gross domestic investment | Gross national savings | Imports (goods + NFS) | Exports (goods + NFS) | Import surplus |
|---|---|---|---|---|---|---|
| Étatist countries | | | | | | |
| Ghana | 1960 | 24.7 | 16.2 | 35.8 | 28.5 | 7.3 |
| | 1965 | 18.1 | 7.1 | 27.1 | 17.4 | 9.7 |
| | 1970 | 14.5 | 11.6 | 24.4 | 23.7 | 0.7 |
| | 1972–1974 | 10.4 | 11.5 | 20.1 | 22.3 | −2.2 |
| Guinea | 1960 | 5.4 | 5.4 | 21.4 | 23.2 | −1.8 |
| | 1965 | 21.1 | 9.9 | 25.4 | 16.9 | 8.4 |
| | 1970 | 20.7 | 7.6 | 23.9 | 15.2 | 8.7 |
| | 1973–1975 | 15.8 | 0.0 | 30.0 | 18.1 | 11.9 |
| Sudan | 1960 | 8.7 | 8.8 | 11.8 | 12.1 | −0.3 |
| | 1965 | 9.2 | 6.8 | 13.7 | 12.5 | 1.2 |
| | 1970 | 10.3 | 10.9 | 11.3 | 12.5 | −1.2 |
| | 1973–1975 | 15.3 | 10.3 | 16.6 | 12.4 | 4.2 |
| Tanzania | 1960 | 14.6 | 17.4 | 26.5 | 31.0 | −4.5 |
| | 1965 | 14.8 | 14.5 | 25.5 | 26.4 | −0.9 |
| | 1970 | 22.6 | 17.9 | 28.5 | 24.1 | 4.4 |
| | 1973–1975 | 22.3 | 10.3 | 32.1 | 20.4 | 11.7 |
| Market-oriented countries | | | | | | |
| Ivory Coast | 1960 | 15.5 | 11.9 | 36.7 | 39.5 | −2.8 |
| | 1965 | 20.2 | 15.0 | 35.4 | 36.8 | −1.4 |
| | 1970 | 23.3 | 18.7 | 39.9 | 41.1 | −1.2 |
| | 1973–1975 | 23.2 | 17.1 | 43.9 | 45.4 | −1.5 |
| Kenya | 1960 | 20.4 | 14.3 | 34.8 | 32.2 | 2.6 |
| | 1965 | 14.8 | 12.8 | 31.5 | 32.2 | −0.7 |
| | 1970 | 25.3 | 20.7 | 31.8 | 31.0 | 0.8 |
| | 1973–1975 | 23.8 | 14.7 | 38.4 | 34.0 | 4.4 |
| Malawi | 1960 | 10.6 | −5.2 | 35.7 | 21.1 | 14.6 |
| | 1965 | 14.5 | −0.3 | 31.2 | 18.8 | 12.4 |
| | 1970 | 21.9 | 6.3 | 35.3 | 21.9 | 13.4 |
| | 1973–1975 | 23.7 | 13.1 | 34.4 | 22.7 | 11.7 |

Source: World Bank data.

oriented countries had a significantly higher rate of growth of GDP, 6.9%/year, than the étatist nations which averaged only 3.8%/year. Indeed, Malawi and Ivory Coast are the only two nations in sub-Saharan Africa which achieved growth rates of 7% or higher over an extended period and without the benefit of mineral exploitation. Second, in all countries (except Guinea) in Table 4 growth was slower after 1970 than before; part of the explanation must lie with the vicissitudes of the international economy and the droughts which affected agricultural production in many sub-Saharan countries in 1973–1975. Third, a growth rate in agriculture greater than 3% seems to be a necessary, if not a sufficient, condition for relatively rapid GDP growth. Fourth, there is no apparent correlation between the *achieved* pace of industrialization and the extent to which the objective was considered central to development policy. Thus manufacturing in Malawi and Ivory Coast (neither of which gave primary emphasis to industrialization) sustained annual growth rates of 13 and 10%, respectively, while in Ghana (which slanted development policies in favour of industrialization) the long-term industrial growth rate was only 2.6%/year. As a consequence, while the share of manufacturing in GDP stagnated around 10% in Ghana between 1960 and 1974, it grew from 7.1% (1960) to 14.2% (1975) in the Ivory Coast and from 5.8% (1960) to 14.5% (1975) in Malawi (Table 2).

(ii) *Trends in poverty and income distribution*

Systematic and *intertemporal* studies of

Table 4. *Growth in real value added* (per cent per year, at factor cost)

| | Period† | GDP | Agriculture | Manufacturing |
|---|---|---|---|---|
| Étatist countries* | | | | |
| Ghana | 1965–1974 | 2.8 | 3.9 | 2.6 |
| | 1965–1970 | 2.3 | 3.9 | 4.4 |
| | 1970–1974 | 3.3 | 3.8 | 0.2 |
| Guinea | 1960–1975 | 3.8 | 2.8 | 11.3 |
| | 1960–1970 | 3.6 | 2.7 | 14.7 |
| | 1970–1975 | 4.4 | 3.0 | 5.9 |
| Tanzania | 1964–1975 | 4.8 | 2.9 | 7.9 |
| | 1964–1970 | 5.4 | 3.4 | 10.5 |
| | 1970–1975 | 4.2 | 2.3 | 4.7 |
| Market-oriented countries | | | | |
| Ivory Coast | 1960–1975 | 7.3 | 3.7 | 10.0 |
| | 1960–1970 | 8.1 | 4.5 | 11.3 |
| | 1970–1975 | 5.5 | 2.1 | 7.6 |
| Kenya | 1964–1975 | 5.8 | 3.2 | 8.4 |
| | 1964–1970 | 6.6 | 4.7 | 7.2 |
| | 1970–1975 | 4.9 | 1.6 | 9.9 |
| Malawi | 1964–1975 | 7.5 | 4.8 | 13.0 |
| | 1964–1970 | 6.3 | 3.7 | 15.1 |
| | 1970–1975 | 9.0 | 6.2 | 10.5 |

Source: World Bank data.
* Data for Sudan were under revision.
† For each country the longest possible period with consistent data has been used and then divided into two subperiods around 1970.

poverty and income distribution in sub-Saharan Africa hardly exist. A prominent exception is a recent study by the World Bank for Tanzania which sums up the main tendencies in the distribution of income in the period between the Arusha Declaration (1967) and 1975 as follows. First, that Tanzania took a series of steps which were largely successful in preventing the emergence of an indigenous urban élite reaping high incomes from industrial, commercial and residential capital. Second, amongst the urban wage-salariat, while the highest levels (perhaps the top 2–3%) have suffered significant absolute and relative declines in post-tax real income, the top quarter retained (indeed, slightly increased) its share of the urban wage-salariat pie. Third, amongst Tanzania's smallholder households, those in the rich regions, on average, achieved small increases in private real incomes, while those in the poor regions suffered significant declines, indicating some worsening in the intra-rural distribution of private incomes. But this disequalizing tendency was counterbalanced by a significantly egalitarian trend in the distribution of certain public services, notably primary education. Fourth, the disparity in average real income between smallholders and urban wage/salary earners remained largely undented by policy efforts, though this was an enormous improvement on the pre-1967 record of widely diverging trends. Finally, this continuing gap in urban–rural living standards, along with other factors, fuelled increases in rural–urban migration which increased the rate of urban unemployment and lowered real incomes in a growing, low-income informal sector.[21] Basically, a strongly egalitarian approach was somewhat weakened in implementation by an unsatisfactory agricultural growth record, a misconceived emphasis on shoring up real urban minimum wages through wage-policy, and by a pronounced upward shift in the skill-composition in the middle orders of the wage-salariat, in part reflecting successful attempts to evade the prevailing incomes policy through in-service promotions and job-reclassifications.

For other countries the available evidence is much less complete. In Ghana, Knight (1972) estimated some narrowing of urban–rural income differentials between 1960 and 1967 mainly because of a 20% rise in rural incomes. Within the urban wage-salariat Killick (1978)

cites evidence to show a worsening distribution between 1956 and 1968, attributable partly to salary increases skewed in favour of the upper ranges of the civil service and partly to a rapid erosion of real minimum wages through differential rates of inflation. In Kenya, urban unemployment had emerged as a significant problem in 1969 (ILO–Kenya, 1972). The preliminary evidence from an ongoing World Bank study on Kenya suggests a pattern of fairly rapid increase in average rural incomes since the mid-1960s alongside growing land and income concentration. The top 30% of rural households appear to have benefited most. While the next 30% have also enjoyed significant 'trickle down', there does not seem to have been any significant change in the *per capita* incomes of the lowest 40% of rural households. Among urban households there appears to have been a similar pattern of rapid growth plus worsening income distribution between 1969 and 1974, except that in this case the lowest 40% seem to have participated in the real income gains. Furthermore, between 1969 and 1974 there does not appear to have been any significant worsening in the rate of urban unemployment or informal sector incomes. And the available evidence suggests that thanks to the nexus of family links with higher-income households, the unemployment in 1974 was not associated with deep-seated urban poverty. Berg (1971, p. 233) uses Amin's (1967) work to show how the rapid growth of the Ivory Coast between 1950 and 1965 benefited a large majority of the country's rural population, including in the relatively disadvantaged northern region: 'Only one-third of the rural population is now (1965) in "isolated and stagnant" zones, as compared to sixty percent in 1950, and real cash income of the northern villager has, according to Amin's figures, doubled in fifteen years.' Two recent point estimates for 1970 (Chenery *et al.*, 1974) and 1973/1974 (IBRD–Ivory Coast, 1978) indicate a significant improvement in the national size distribution of income in the intervening years, though some of this may simply reflect differences in available data and assumptions.[22]

(iii) *Development problems, policies and results*

The last few pages have provided some cursory information on trends in output and income distribution for selected countries. It is now time to enrich the account by essaying some causal connections between initial conditions, development policies and results. It will be particularly interesting to compare and contrast the policy stances of the étatist and market-oriented countries with respect to the major development issues.[23]

*Developing agriculture*

Both sets of countries inherited economies in which agriculture was by far the largest sector, providing livelihood to 80% or more of the population, the vast majority of whom were smallholders. The consequences of policies taken (or omitted) to enhance smallholder productivity were likely to be far-reaching. They were. On balance, the market-oriented countries were more successful than the étatist nations in creating policy frames appropriate for exploiting the potential of smallholder agriculture.

*First*, étatist nations were prone to emphasize structuralist (or 'transformation') approaches to agricultural development over gradualist (or 'improvement') ones. The former approach was typified by the concentration of scarce public capital and trained manpower on a few large-scale schemes and/or emphasis on state-sponsored institutional reorganizations of the rural sector. Thus in Ghana during the 1960s newly established and mechanized state farms received the bulk of agricultural development funds, while the extension service for smallholders languished (Berg, 1971). In 1962 responsibility for extension work was transferred from the Ministry of Agriculture to the politicized United Ghanaian Farmers' Council (UGFC), which was also given the responsibility for setting up co-operatives and providing credit. This led to the deterioration of extension services, the politicization of credit allocations and the antagonization of the peasantry (Killick, 1978, Chap. 8). In Tanzania, between 1961 and 1967, public development capital was lavished on a handful of village settlement schemes which suffered from premature mechanization, excessive investment in social services and an unwarranted degree of what Dumont has termed 'spoon-feeding' (Dumont, 1969).[24] During this period government policy also embraced the 'improvement approach', which relied heavily on the spread of extension services to cash crop farmers and achieved significant initial successes. But, in 1967, the economic differentiation among the peasantry resulting, in part, from the uneven advantage taken of these services, sparked a series of egalitarian Government institutional initiatives, including the 'ujamaa' campaigns, the 1972 decentralization of Government and the 1974–1976 crash villagization programme. While these initiatives were aimed at creating a framework conducive to long-term, broad-based rural development, the prolonged flux in the peasant's institutional environment exacted a significant short-term toll in foregone rural production and incomes. In Sudan, investment, research and qualified man-

power resources were concentrated throughout the period on a few massive, state-run irrigation schemes (such as the Managil extension of the Gezira, the Khasm-el-Girba scheme, and the recent Rahad project) and some programmes in support of private, mechanized farms. The 10 million people earning a livelihood from traditional rainfed smallholder cultivation were residual legatees of the agricultural development effort (ILO–Sudan, 1976).

In contrast, the market-oriented countries made support of private peasant production the main plank of agricultural development policy. Though these countries tended to steer clear of direct state production in agriculture, there was no lack of public investment in infrastructure, research, marketing, extension and credit facilities. Thus it is noteworthy that agriculture was receiving 36% of total public investment in the Ivory Coast in the period 1966–1970, compared to 30% in Tanzania in 1974–1975, even though the latter had, by then, begun to shift investment priorities in favour of the directly productive sectors of agriculture and industry.[25] The market-oriented countries sustained and expanded successful programmes of adaptive research in individual cash crops. In the Ivory Coast specialized, long-established research institutes for coffee, cocoa, oilcrops and cotton worked closely with the 'development societies' for these crops (IBRD–Ivory Coast, 1978). In Kenya, the newly-independent Government built on the inherited research programmes in coffee, wheat and pyrethrum. The Kenya Tea Development Authority pioneered a system of 'tea roads', smallholder extension and organization of collection and processing functions which permitted smallholders to become efficient producers of tea, usually regarded as a plantation crop par excellence because of the need for close co-ordination between the production, plucking, and collection of tea leaves and factory processing to produce a quality product. The successful adaptation of hybrid maize for smallholder cultivation in high-potential areas of Kenya was a rare success story of adaptive research in foodcrops in sub-Saharan Africa. Aside from these directly supportive activities by state agencies the governments in market-oriented countries usually provided qualitative encouragement to progressive farmers, instead of viewing them as unwelcome harbingers of an entrenched kulak class. For example, in Malawi, the 'Achikumbe' programme provides various kinds of benefits and recognition to smallholders who consistently achieve certain high standards of husbandry and market orientation (Humphrey, 1974).

*Second*, in the majority of the sub-Saharan countries the policies with regard to producer and consumer pricing, the exchange rate, foreign trade taxes/subsidies and controls, and domestic indirect taxes were such as to engender incentive structures which were biased in favour of industrial and commercial activities and against agriculture. Put another way, these policies turned the domestic terms of trade against agriculture. Thus, in Sudan, Acharya (1975) estimated that the incentive structure prevailing in the early 1970s implied an effective taxation of agricultural value-added of nearly 30% and an average effective protection of a sample of industrial activities of well over 100%. In a similar study limited to the agricultural sector of Zambia, Wolf (1974) estimated an effective taxation of agriculture of about 30% in 1974. While there are not comparable estimates of effective protection of industry in Zambia the average is bound to have been high, given the high structure of nominal tariffs and restrictive quantitative controls. In a detailed study of the factors responsible for the negligible growth in *per capita* farm incomes in Uganda over a 40-year period ending in 1967, Jamal (1976) pinpoints wage, pricing and tax policies as chief culprits. Evidence for substantial bias in the structure of incentives against agricultural pursuits is also available for Ghana (Killick, 1978; Pearson *et al.*, 1976), Tanzania (World Bank internal report), Kenya (IBRD–Kenya, 1975) and Ivory Coast (Pursell *et al.*, 1975).

The main reasons underlying the widely observed phenomenon of incentive bias against agriculture were as follows:

(i) The perennial pressure for cheap food in urban centres led governments to hold producer prices for foodcrops below their border price equivalents (it should be noted that in the great majority of sub-Saharan African countries the state sets producer prices for most important food and export crops). A similar tendency existed for export crops because they provided administratively easy tax handles. This tendency was accentuated in étatist countries for two reasons: first, such countries gave progressively greater roles to parastatals and state-sponsored co-operatives for intermediating between the farmer and the point of final sale, and the inefficiencies and financial difficulties of these nascent organizations were typically accommodated by widening the transport/marketing margins at the expense of the farmer; and second, there was a distinct ambivalence towards price incentives to reinforce a pattern

of export specialization in agricultural raw materials that was associated with colonialism.

(ii) The widespread attempt to 'force' the pace of import-substituting industrialization (again more pronounced in étatist countries) led to tariffs and import regimes which protected domestic industry and raised the cost of manufactured goods to rural buyers.

(iii) Attempts to compress the inherited, and widely divergent, urban pay structure from the bottom up tended to raise the average level of wages, especially for unskilled labour. This rise in wage costs was compounded, in some countries, by predilections towards overmanning in the growing number of parastatal industrial and commercial enterprises. The rise in wage costs instigated higher levels of protection for industry and commerce and was paid for by domestic consumers, most of whom were rural dwellers.

Basically, all these forces limited the real income earning opportunities in agricultural pursuits. Two countries where such tendencies were least pronounced were the Ivory Coast and Malawi (both in the market-oriented sample). In one 'recently étatist' country, Ethiopia, the income opportunities for peasants have been greatly enhanced by the structural land reforms of 1975 in sub-Saharan Africa's one country with an archetypally, feudal agrarian structure (Cohen *et al.*, 1976).

Finally, it should be noted that irrespective of the strategy followed, the sub-Saharan countries with well-developed mineral sectors (such as Zambia and Zaire) were especially guilty of neglecting agricultural development. The readily accessible rents and foreign exchange earnings from minerals masked the long-term need for instituting appropriate structural and incentive policies for developing agriculture.

Both étatist and market-oriented nations tended to continue the pre-independence pattern of relative neglect of foodcrops with respect to pricing, infrastructure and, especially, adaptive research. Food production statistics for countries of this region are subject to large margins of error (partly because of the large share of non-marketed production) and the heavy dependence on climatic factors leads to large variations, which make it difficult to interpret trends. Nevertheless there are clear and disturbing indications that the expansion of food production has failed to keep pace with the growth of population in a number of sub-Saharan countries. In a still larger set of nations output has grown more slowly than effective demand, which has expanded more rapidly than population because of the growth in *per capita* production and incomes. Indeed, it is only because slow growth of incomes (due to a levelling off in the expansion of export crops as well as lagging domestic food production) has held down the growth in *per capita* incomes that the gap between the rates of increase in food production and in effective demand for food has not been wider. The FAO's regional indices of *per capita* food production illustrate the relatively poor record in Africa, especially when compared with other continents (FAO, 1977, p. 26) (see Table 5). One conspicuous result of the slow growth in food production has been the increased recourse to imports, financed in part by food aid, but also purchased with foreign exchange.

*The external sector: constraints and policies*

Given the initial openness of the sub-Saharan African economies and the foreseeable demands for increased import flows, a successful, long-term export policy was a prerequisite for a sustained development effort. That was easier said than done. The initial export structure of these countries was heavily dependent on a few agricultural commodities. The choice facing most countries was whether to deepen the existing specialization further on the basis of comparative advantage or attempt to nudge the evolution of export competitiveness away from agricultural products. A strong attraction of the latter choice was the very sharp declines in external terms of trade that these countries had

Table 5. *Indices of food production* per capita, 1961–1965 = 100

| | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|
| Africa | 99 | 92 | 98 | 96 | 97 |
| North and Central America | 106 | 107 | 107 | 112 | 114 |
| South America | 101 | 101 | 104 | 103 | 111 |
| Asia | 103 | 106 | 105 | 109 | 109 |

Note: These are price-weighted indices and thus reflect changes in the quality (as reflected in the market value) as well as quantity of food produced.

Table 6. *Indices of export volume and terms of trade*, 1970 = 100

| | 1954–1956 | 1960–1962 | 1966–1968 | 1973–1975 |
|---|---|---|---|---|
| Etatist countries* | | | | |
| Ghana | | | | |
| Export volume | 66 | 85 | 71 | 123 |
| Terms of trade | 148 | 90 | 94 | 75 |
| Purchasing power | 98 | 75 | 67 | 92 |
| Sudan | | | | |
| Export volume | 65 | 84 | 80 | 60 |
| Terms of trade | 119 | 89 | 97 | 132 |
| Purchasing power | 77 | 75 | 78 | 77 |
| Tanzania | | | | |
| Export volume | 52 | 78 | 103 | 76 |
| Terms of trade | 123 | 95 | 102 | 111 |
| Purchasing power | 64 | 73 | 102 | 84 |
| Market-oriented countries | | | | |
| Ivory Coast | | | | |
| Export volume | 29 | 56 | 83 | 157 |
| Terms of trade | 139 | 77 | 95 | 79 |
| Purchasing power | 40 | 43 | 80 | 125 |
| Kenya | | | | |
| Export volume | 25 | 63 | 89 | 101 |
| Terms of trade | 154 | 96 | 97 | 87 |
| Purchasing power | 38 | 60 | 86 | 88 |
| Malawi | | | | |
| Export volume | 48 | 51 | 102 | 148 |
| Terms of trade | 111 | 100 | 89 | 77 |
| Purchasing power | 53 | 51 | 90 | 113 |

Source: *UNCTAD Handbook of International Trade and Development Statistics*, 1976.
* Data are not available for Guinea.

experienced between the mid-1950s and 1960–1962 (Table 6), and which was an important explanation for the ambivalence towards primary exports shown by many of the newly independent countries. The market-oriented countries cast their lot on the side of continued specialization in agricultural exports, with the partial exception of Kenya, which also pursued manufacturing export markets in the partner countries of the East African Common Market. Not coincidentally, these were the countries which sustained the most favourable environments for private peasant agriculture. The étatist nations, on the other hand were, on balance, less favourably disposed towards both private peasant agriculture and further specialization in agricultural exports.

The information in Table 6 supports some surprisingly clear-cut judgements on the relative efficacy of these choices. First, the fears of a long-term decline in the terms of trade were not misplaced. Comparing 1954–1956 to 1973–1975, five out of the six countries experienced substantial declines in their commodity terms of trade (the number drops to four if 1973–1975 is compared with 1960–1962). But the real issue was whether, given the correctness of such a prediction, these African countries had a viable alternative export policy to one of continued specialization in agricultural exports. If the past two decades of experience are any guide, the answer seems to be negative. Comparing 1954–1956 to 1973–1975, the export volumes of the Ivory Coast, Kenya and Malawi increased five-fold, four-fold and three-fold, respectively, while they failed to double for Ghana, increased by about 50% in Tanzania and stagnated in Sudan. What is even more telling is the record on the 'purchasing power of exports'. These indices stagnated for Ghana and Sudan, and rose by a third in Tanzania. In contrast, the index tripled for the Ivory Coast and more than doubled for Kenya and Malawi. The market-oriented countries were clearly able to

generate volume increases which far outweighed adverse price trends, through a policy of continued specialization in agricultural exports combined with increasing diversification across agricultural commodities. The ambivalence of the étatist nations was apparently an unsound basis for a successful export policy. In Berg's (1971, p. 227) somewhat colourful words, it would appear that 'Competition in export markets for primary products may be something like war, in which there are only the quick and the dead'.

Finally, the argument that the étatist nations did not need a strong export policy because of their inward-looking development strategy, does not hold much water. For example, despite the importance attached to the goal of self-reliance in Tanzania after the 1967 Arusha Declaration, the volume of imports grew by over 60% between 1966–1968 and 1973–1975, compared with increments of 14% for Kenya, 54% for Malawi and 74% for the Ivory Coast over the same period. As a share of GNP Tanzania's import surplus averaged 11.7% in 1973–1975 compared to 4.4% in Kenya, 11.7% in Malawi and an *export* surplus of 1.5% in the Ivory Coast (Table 3). In the absence of a strong export record, the continued high dependence on imports simply necessitated growing dependence on external aid.

*Human skills and economic development*

(i) *Manning the government.* The acute scarcity of experienced African administrators, technicians and entrepreneurs at independence cannot be overemphasized.[26] At a time when most African governments were poised to embark on bold new development programmes, the higher-level skills that existed within the boundaries of these nations were largely held by non-Africans. The choice facing most nations was whether to 'Africanize' as rapidly as possible, trusting to on-the-job skill acquisition to compensate for the lack of previous experience or formal training, or alternatively, to maintain, and even deepen, the reliance on expatriate skills until the ongoing investments in education bore fruit.[27] Given the colonial history, the pressure for rapid Africanization was extremely strong and directed especially towards the machinery of government. Most African countries, and especially the étatist ones, opted for rapid Africanization.

Thus, for example, Tanzania pursued a very determined policy of 'citizenization', which increased citizen representation in the senior and middle grades of the civil service from 26% at independence in 1961 to 90% by 1971, while the total number of posts in these categories increased by 140%. It entailed increasing the number of citizen officers *nine-fold* from 1170 in 1961 to 9708 a decade later. This remarkable feat was accomplished mainly through inducting large numbers of existing African school teachers into the civil services and giving the government first claim on emerging cohorts of secondary-school leavers. One major problem with this policy was that the inherited education system was better adapted to producing clerks than managers and technical specialists, even though these were precisely the skills in greatest demand as the scale and complexity of the public administration's development effort expanded. The symptoms of an inadequately staffed public administration showed up in the form of reduced capacity to implement policies (especially those which required a high degree of co-ordination) and low standards of maintenance and operating efficiency in running public facilities like rural water supply systems, roads and health facilities, leading in many cases to premature destruction of expensive capital assets. The problems were compounded by the discouragement of non-African, small-scale operators in construction, transportation and various kinds of repair/maintenance activities.

Depending on the initial heritage of trained manpower and subsequent policies, these problems may be found in varying degrees in other countries. Thus, compared with Tanzania, the even greater scarcity of trained African manpower in Zambia accentuates some of the problems described above. In Kenya, on the other hand, a larger initial stock of people with appropriate skills, combined with a slower pace of Africanization and a more permissive attitude to non-African small-scale operators, has engendered greater efficiency in public administration and services. Countries which launched major étatist initiatives have tended to exacerbate their trained manpower scarcities and associated problems. Thus, Ghana at independence was better off with respect to trained African cadres than Tanzania, Zambia or Kenya. But the extremely rapid increase in public-sector functions and responsibilities during the Nkrumah years placed insupportable burdens on a small, but competent, civil service. Berg (1971, p. 205) has drawn the following lesson from the early Ghanaian experience: 'A large increase in the size and character of the tasks imposed on a weak administrative system does not simply mean that capacity to perform declines marginally. Rather it tends to set into

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motion forces that erode the whole decision-making machinery and destroy the capacity to execute and control'. Echoes of such a phenomenon may be discerned in Guinea during the 1960s and in Tanzania between 1967 and 1975.

Two market-oriented countries, Malawi and the Ivory Coast, opted decisively for heavy continued dependence on expatriate skills. Thus, in the Ivory Coast the population of Europeans (who play a major role in the modern sector of the economy, including public administration), *increased* from 30,000 in 1965 to 50,000 in 1975 (IBRD–Ivory Coast, 1978). Greater efficiency was obtained at the price of much slower rates of Africanization. Progress towards self-reliance, in the sense of visible, African control over the commanding heights of the economy, was slower. While such a policy was heavily criticized in many quarters as neo-colonialist, it paid one other dividend over and above the efficiency gains of a more gradual transition period. By entailing slower rates of promotion for Africans in high-/middle-level positions of the government it created less of an 'excessive expectations' problem for future cohorts than in the other countries, where rapid Africanization permitted swift career advances for the initial cohorts of African civil servants. As a related point, the more restricted government career opportunities in these market-oriented countries induced fresh entrants to the educated labour force to undertake much more serious efforts to seek remunerative occupations in non-government activities, such as commercial farming or non-farm small-scale enterprise. In the more rapidly Africanizing countries the early association of secondary-school-and-above qualifications with the virtual guarantee of a well-paid government job engendered massive demands for post-primary education, which, when met, engendered long-term problems of educated unemployed (Andreski, 1968). Among the few countries which successfully resisted this pressure and held the expansion of post-primary facilities in some reasonable balance with long-term skilled manpower requirements was Tanzania.

(ii) *Entrepreneurship and industrialization.* The lack of a strong class of African industrialists tended to confront policy-makers with the choice between continuing with the colonial heritage of an industrial sector owned and controlled by private non-African groups (including both foreign transnational investors and local 'ethnic minorities') or 'Africanizing' modern industry through nationalizations and public investment in industrial plant. Most countries veered towards the latter path. Ghana and Guinea led the way immediately following their independence (1957 and 1958, respectively). On the east coast, Tanzania followed suit after the 1967 Arusah Declaration, Sudan in 1969, and Zambia embraced the parastatal mode for industrial organization in 1968. The three market-oriented countries, the Ivory Coast, Kenya and Malawi, continued to rely predominantly on foreign private investment and management for industrial development.

Thus far the development of successful African industrial entrepreneurship, whether in private or parastatal modes, has been limited. As discussed in Section 1, at the time of independence the greatest promise for private African entrepreneurship appeared to be in some of the coastal West African economies like Ghana, Nigeria and Senegal. But very soon after independence, these countries activated strong import-substitution policies, including detailed administration of import and industrial licences, which tended to favour the larger established foreign subsidiaries and new government industries and be biased against emerging, small-scale indigenous manufacturers. These policies, together with the existing handicaps of the environment (Schatz, 1972) inhibited the evolution of private African entrepreneurs. In the lower-income East African countries it was probably too early to expect a significant transition of Africans from cash farming to industry. Besides, in all these countries the availability of relatively well paid and secure government jobs dampened proclivities for industrial ventures. In the étatist countries like Ghana, Guinea, Sudan and Tanzania, the emergence of private industrial African entrepreneurs was further inhibited by the anti-private-sector stances of government policies.

Almost by definition, the scale of state entrepreneurship in the industrial sector of the étatist countries has increased greatly. Given the relative infancy of the industrial sector as a whole and the even briefer history of the parastatal mode, it is probably too early to form a definite evaluation of African state entrepreneurship. However, in most countries policies of import restrictions, tariffs, preferential access to domestic and imported raw materials and intermediate imports, confinement schedules and subsidized credit and equity terms have created a highly protective framework which discourages striving for efficiency [see, for example, Killick (1978) on Ghana, Acharya (1975) on Sudan]. Many of these features of the macro-policy-frame are also to be found in

Table 7. *Industrial resource use efficiency in Ghana and Tanzania*

| Ghana | 1962–1963 | 1965–1966 | 1969–1970 |
|---|---|---|---|
| Value-added per worker (in constant 1962 cedis) in | | | |
| (a) Private enterprises | 1635 | 1775 | 1424 |
| (b) State enterprises | 748 | 690 | 784 |

| Tanzania | | |
|---|---|---|
| Performance-indicators: ratios 1972–1973/1966–1967 | Parastatal | Private |
| Capital–output ratio | 1.46 | 1.33 |
| Capital–labour ratio | 1.00 | 1.36 |
| Value-added per worker | 0.69 | 1.01 |
| Gross real rate of return on capital | 0.73 | 0.87 |
| Index of total factor productivity | 0.70 | 0.88 |

Sources: For Ghana, Killick (1978); for Tanzania, World Bank data.

some of the market-oriented countries like Kenya (IBRD–Kenya, 1975), which were also more susceptible to being exploited through transfer-pricing and overinvoicing practices of large foreign companies. But in the case of parastatal firms the macro-policy problems are compounded by the weakness of firm-level incentives for workers and managers, the inexperience of the latter, the multiplicity and diffusiveness of objectives and the transference of bureaucratic procedures from civil-service backgrounds. Notwithstanding all the caveats regarding product composition, appropriateness of the time period etc., the data in Table 7 appear to support the view that parastatal firms in Ghana and Tanzania have performed worse than private ones in recent history. Further, the siphoning off of many of the more capable and experienced senior civil servants to man the growing number of parastatals diluted the quality of the government administration.

*Wage policy and its effects*

Both the colonially-bequeathed wage structure and the subsequent course of policies had significant implications for growth and income distribution in the sub-Saharan African countries. Pursuing this paper's penchant for generalizations a stylized version of these issues is presented here, which purports to encapsulate the salient findings of studies on Tanzania (World Bank internal report), Kenya (IBRD–Kenya, 1975; ILO–Kenya, 1972), Sudan (ILO–Sudan, 1976), Uganda (Jamal, 1976) and some interpretive pieces like Wolf's (1973).[28]

In essence, such a stylized version runs as follows. As seen earlier, the colonial period bequeathed a widely divergent public pay structure, which was mirrored, for similar reasons, in the small, urban non-government sector. Not only was there an enormous difference between the top, European salaried official (or company manager) and the unskilled African wage-earner, but the wage of the latter had had to be set high enough to attract rural peasants with a relatively high reservation price into 'permanent' urban wage labour. Around the end of the colonial period these unskilled urban wage rates tended to become codified in minimum wage legislation. After independence, there was rapid Africanization of the administrative grades of the civil service. But the change in race was not associated with any significant change in the pay structure. One major reason for this was that it was politically extremely difficult to reduce the pay of senior African civil servants substantially, when the old pay scales (or even better ones) were necessary to retain many of the ex-colonial expatriate staff in the more technical government functions. And in the private modern sector, foreign firms continued to pay their predominantly expatriate senior staff the same high salaries as before. Thus, post-independence pressures to reduce the massive disparities between the top and bottom of the urban pay structure could be accommodated more easily by raising the pay scales at the bottom. This is what happened.

There were several significant consequences. First, during the first decade after independence the gap in real earnings between smallholder peasants and urban unskilled workers or clerical staff widened greatly. Consequently the demand for such urban formal-sector jobs

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expanded much faster than supply and the positions had to be rationed, usually on the basis of educational qualifications, such as primary-school leaving certificates. This, in turn, generated a massive demand for education, where the emphasis was on the diploma rather than the content of education, since it was the former which was seen as the passport to formal-sector jobs; there was no particular reward attached to the more difficult process of acquiring vocational or craft skills. The supply of education increased rapidly, especially in rural areas, partly in response to the vastly increased demand and partly to well-grounded desires to reduce illiteracy and ignorance. Armed with the necessary certificates large numbers of rural youth migrated to urban centres to engage in the lottery for relatively well-paid formal-sector jobs. As the rate of growth of such employment typically lagged behind the combination of natural increases in existing urban labour force and the growth of migration to towns, the result was increasing urban unemployment, the growth of an informal sector, and greater urban poverty, all relatively new phenomena in sub-Saharan Africa.

This pattern of pay increases for the lower end of the urban formal-sector employees was not seriously constrained by market forces. In the case of government employees there was hardly any 'market discipline' since government services are 'non-marketed' outputs; the only consequence was a swelling of recurrent expenditure budgets and a decline in budgetary savings. Prices of marketed but non-traded services (like hotels, commerce) went up. In the industrial sector, which produced tradeable output, the increases in the wage-bill could only be accomodated by increased protection (almost invariably granted) which cushioned competitive pressures for industrial efficiency and raised the relative prices of manufactures purchased by rural dwellers. The pattern of high and increasing wages for unskilled industrial labour also augmented existing biases in favour of capital-intensive industrial activities. The government was often particularly guilty of granting excessive pay increases to middle-level personnel. This tended to fuel the demand for secondary education and discouraged the emergence of private African enterprise.

Thus the adverse consequences of wage policy included:

(i) widening urban–rural income differentials;
(ii) the emergence of urban unemployment and poverty;
(iii) excessive investment in the wrong type of education;
(iv) reduced government savings;
(v) increased protection of the nascent industrial sector;
(vi) increased orientation within industry in favour of capital-intensive activities; and
(vii) a failure to reward craft skills necessary for the evolution of African non-government enterprises.

In varying degree, these policies and consequences may be found in both étatist and market-oriented countries. A somewhat greater predilection towards overmanning in the urban formal sector, a lower level of industrial efficiency and a higher incidence of inefficiencies and disruptions in the distribution networks serving rural areas may all have made the implicit tax on rural incomes exerted by the structure of overvalued urban formal-sector incomes more onerous in the étatist nations. Finally, the presence of a well-developed mineral sector tended, as in Zambia, greatly to accentuate the problems of an inappropriate wage structure. Labour earnings were typically very high in the capital-intensive mineral sector and tended to impart a strong upward bias to the entire formal-sector wage structure.

## 3. DEVELOPMENT ISSUES AND POLICY PRIORITIES FOR THE FUTURE

This section draws on the earlier historical and diagnostic account to map an agenda of development issues and policy priorities that are likely to face the low-income countries of sub-Saharan Africa in the next decade or two. The underlying organizing theme of this section is: given the stage these countries had reached in the mid-1970s, what are the critical long-term development issues that they must tackle to provide the best hope for self-sustaining development that helps to alleviate poverty? In the interests of brevity the caveats and qualifications are shed by the wayside; to avoid the fence-sitting of Joan Robinson's famous 'two-handed economist' (on the one hand . . . while on the other . . . ) and encourage the crystallization of some ideas, the tone will be much more prescriptive (perhaps even didactic) than a more scholarly, and agnostic, treatment might warrant. Before launching into a discussion of these critical development issues it is helpful to set the stage with a set of considerations which profoundly affect the longer-term aspects of many of the development issues. These considerations relate to the question of population growth.

(a) *The demographic setting*

Of all the regions of the world, sub-Saharan Africa displays the highest fertility and mortality rates; and while mortality rates have been declining, there is yet to be any significant change in fertility rates; so the rate of population growth is likely to accelerate before it declines. Although historical data on mortality rates in these countries are scarce and unreliable, it is clear that over the past two or three decades there has been a significant decline, leading to increases in life expectancy at birth of 7–10 years between the early 1950s and early 1970s (Table 8). Total fertility rates have remained high, in the range of 5.5–7.0, with crude birth-rates clustering around 45–50/1000 (Table 8). Except in the two small island nations of Mauritius and Réunion there has been no significant decline in fertility. Indeed in some countries, fertility appears to have risen in recent years (Cassen, 1977). Rates of population growth range between 2.5 and 3.5% per annum.

The continuing pattern of low life expectancy is attributable to extremely high rates of infant and child mortality, explained by the usual features of high incidence of communicable disease, malnutrition, gastric diseases, poor traditional midwifery and weaning practices. These seem to bear especially harshly on Africa because of adverse climate and terrain, unusually hardy disease vectors and the relative paucity of countermeasures (Cassen, 1977). The health conditions also influence fertility. Where fertility is believed to have risen in recent years, it has been attributed to adult health factors such as higher fecundity and reduction of secondary sterility.

With continuing improvements in general health conditions, all those factors which will improve women's ability to conceive and bring pregnancies successfully to term will tend to increase fertility. On the other hand, improved prospects of children's survival will tend to reduce the desired number of live births. In the decade ahead, the first influence is likely to outweigh the second in most countries. There is much debate on the effects of urbanization and education on fertility. Parents' recognition that they cannot afford education (especially secondary education) for large numbers of children is probably the best hope for future fertility decline. Very few governments presently endorse strong family planning programmes, though in quite a few countries elements of such programmes are increasingly being incorporated into the maternity–child–health component of national health services. Even when governments adopt family planning programmes, as in Kenya, the spread of family planning, as measured by numbers of acceptors, does not appear to be accelerating; besides, programme activities are still mainly confined to the highly educated (Cassen, 1977).

Thus the outlook for the next two decades is of continued (and sometimes even accelerating) rapid population growth. Ultimately, as improvements in child mortality reduce the number of desired births and education offsets strongly held pro-natal feelings, fertility can be expected to decline. Family planning programmes and motivational work may be able to accelerate this change but at present, as Cassen (1977) concludes, 'their greatest appeal may come from stressing the (true) fact that longer birth intervals and fewer births improve the

Table 8. *Demographic data for selected sub-Saharan Africa countries*

| Country | Estimated expectation of life at birth (years)* 1950–1954 | 1970–1974 | Change | Estimated crude birth-rates in 1970s (per 1000)† | Estimates of total fertility rates‡ |
|---|---|---|---|---|---|
| Ethiopia | 31 | 38 | +7 | 45.1 | 6.7 |
| Kenya | 40 | 50 | +10 | 47.7 | 6.7 |
| Somalia | 33 | 41 | +8 | 47.7 | 6.1 |
| Tanzania | 34 | 44 | +10 | 47.1 | 6.1 |
| Malawi | | | | 49.1 | 6.1 |
| Congo | 33 | 43 | +10 | 44.9 | 5.8 |
| Zaire | 38 | 43 | +5 | 45.5 | 5.9 |
| Ghana | 34 | 43 | +9 | 46.8 | 6.9 |
| Ivory Coast | 33 | 43 | +10 | 45.8 | 6.8 |
| Upper Volta | 31 | 38 | +7 | 48.8 | 6.4 |

* From *Report on Monitoring of Population Trends*, Tabulation, UN E/CN.9/xix/CRP Add 1 (December 1976).
† From U.N.E.C.A. *Demographic Handbook for Africa*, 1975.
‡ From R. Cassen, 'Population change: current trends', mimeo (November 1977).

prospects of child survival, and mothers' survival too'.

In the meantime, economic policy-makers must plan on the basis of high rates of population growth. Two obvious consequences of this growth will be: (i) increases in social service spending budgets, which should strengthen the case for institution of cost-recovery systems; and (ii) acceleration of the shift in agriculture from land-extensive civilization systems to more scientific ones.

### (b) *A strategy for agriculture*

For most of these countries, in the medium and long run, the key to more rapid growth, swifter alleviation of poverty, containment of unemployment, the reduction of urban–rural income differentials, a more manageable balance of payments and a more robust basis for long-term structural transformation of the economy, lies with increasing production in the rural economy. While industrialization of the right kind can play a strong supportive role, its capacity to generate employment and incomes directly will be quite limited for decades to come. Thus, for example, in Tanzania, where the choice of industrial strategy has been the focus of sustained analysis and debate during the past 5 years, long-term simulations reveal that whatever their other differences, none of the strategies under consideration offers a scale of manufacturing employment greater than a mere 3% of the projected labour force by 1995 (World Bank, and Roemer *et al.*, 1976). Tanzania is not atypical: employment in the organized manufacturing sector in the 1970s in higher-income countries like the Ivory Coast and Ghana accounted for only 2% or so of their labour force. For the foreseeable future the task of providing productive employment for the growing labour force of these nations must rest squarely with the agricultural sector.

Within the agricultural sector the long-term objectives of growth, poverty alleviation and structural transformation are likely to be best served by concentrating resources and policies in favour of smallholder agriculture. Smallholder agriculture offers the best opportunities for transforming abundant resources of land and labour into output, while economizing on scarce factors of capital and foreign exchange. This is true both for the present endowment of resources and for likely future technical innovations. The long-term, international record on agricultural innovations and their diffusion is replete with promise for divisible, scale-neutral innovations, which can be adopted by smallholders and which enhance the productivity of land and labour at their command (Johnston and Kilby, 1975; Hayami and Ruttan, 1971).

Before outlining the principal elements of a smallholder strategy, certain additional reasons may be cited as to why large-scale, capital-intensive agricultural modes (state farms, private estates) are likely to play only a limited role in the optimal, long-term strategy for agricultural development in Africa. Such capital-intensive agricultural modes (at least, the privately managed ones) are frequently associated with higher land productivity than peasant farming. Less often they also boast greater total factor productivity. Amongst their attractions for policy-makers are the ready accessibility of their level of production. For example, inclement weather not only reduces the yields of cash crops; it may lead peasants to switch resources away from cash crops and into subsistence crops to assure a livelihood. Estates are not likely to make such a switch.

There are two principal arguments against emphasis on private estates and state farms even when they pass the test of static economic efficiency. Both reasons derive from the fact that production from these entities pre-empts a part of the market for smallholders producing the same crops. The market may be domestic (typically for foodcrops) or international (as for export crops); in either case the issue of actual or potential pre-emption is valid. The first reason is based on equity: the benefits from estate production are likely to be distributed much less widely than those from smallholder production of the same output. The second reason follows from this but invokes the mantle of *dynamic efficiency*. Because the diffusion of their incremental incomes is limited, estate farms are less likely to set in motion the broad-based increases in rural purchasing power that are necessary to bring about a mutually supportive dynamic interaction between agriculture and domestic industry, of the kind which has transformed the economy of the Indian Punjab in the last 15 years.

The force of these cautionary remarks (against large-scale agriculture) based on market pre-emption varies across countries with respect to their factor endowments and the specific market situations they confront. For example, in land-abundant countries like Zambia and Zaire large farms based on hired labour may be an appropriate mode of production for quite a few years before the demographic pressures on land sharpen the issues of market pre-emption and income earning opportunities for smallholder farming. In countries where land is less

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abundant, like Kenya, Ethiopia and Ghana, the arguments based on market pre-emption are already persuasive about the limited role for large-scale farming units. As the demographic trends press harder against the availability of land there will be more Kenyas and fewer Zambias in the future of sub-Saharan Africa.

(i) *Increasing smallholder productivity and incomes*

The details of an appropriate smallholder strategy will vary across countries and across agronomic zones within countries. But some principal elements, likely to be common to all, may be distinguished.

*First*, the incentive bias against agriculture present in the policy frames of most countries needs to be substantially diminished, if not eliminated. This will require hard decisions on exchange rates, tariff structures, formal-sector wages, retail price controls, and agricultural producer prices. Nor will it always be sufficient to increase the purchasing power of rural incomes through such policy reforms if failures in the distribution systems conveying manufactured, consumer goods upcountry subvert the use of increased incomes for increased purchases. However, if these actions are taken one can confidently predict substantial increases in rural incomes and production. That smallholders will react positively to improved incentives can be reliably asserted on the basis of the wealth of evidence from all over the globe (including Africa) attesting to the rationality of peasant responses. Indeed, in the short and medium run the anticipated gains from such 'macro'-policy reforms are likely to be greater than benefits from more 'structural, supply-side' improvements in the technology of agricultural production, as the gains from the latter usually have a longer gestation period.

*Second*, throughout the greater part of sub-Saharan Africa, population growth is gradually inducing a transition from resource-based, land-extensive farming to science-based, land-intensive practices (Johnston, 1978). This fact has profound implications. Virtually all studies of African farm systems carried out in the 1950s and 1960s stressed the labour-constrained nature of agricultural output (Cleave, 1974), but the doubling of the population in the last quarter of a century is changing all that. Like all transitions the picture is mixed. There are still substantial opportunities for increasing output by expanding the cultivated area: both through shifts into lower-quality lands and through opening up good virgin land through extension of the rail and (primarily) road networks.[29] But the pressures for land-intensive cultivation are now being clearly felt in many areas. In Kenya 'high-potential' land is virtually exhausted and in certain pockets landlessness has begun to emerge as a significant social problem (Heyer, 1976). Population pressure is also being felt in the good land areas of the Arusha, Kilimanjaro and West Lake regions of Tanzania, northern Ethiopia and the Sahel countries. The symptoms of population pressure may be seen in shortened fallow periods and resulting soil fertility problems. Benneh (1973, p. 139) has estimated that in recent years in Ghana the average fallow period has been reduced from 6–10 years to 2–3 years in the predominant bush fallow system of cultivation. Hance (1970, p. 421) estimated that by the end of the 1960s nearly 40% of land area in tropical Africa had become 'subject to pressure'. All of this suggests that in the long term, growth in agricultural output will come increasingly from improvements in the intensive use of land, stemming from both better husbandry and greater use of 'technical packages' including fertilizer, pesticides and improved seeds. Further, where population pressure on land has been accentuated by a government's 'nucleation' policies (such as Tanzania's villagization programme) the need for improved 'packages' and practices is that much greater.

Given the enormous heterogeneity of the physical environment (primarily due to differences in rainfall patterns and soils) and the relatively small stock of research, especially in foodcrops, the transition to a science-based, land-intensive farming strategy will be a long, slow haul. The need for location-specific adaptive research is great, especially in semi-arid zones. Special attention needs to be devoted to rootcrops and coarse grains, which are particularly prominent in African food production and consumption (International Food Policy Research Institute, 1977). Adaptive research will need to embrace biological–chemical innovations such as seed fertilizer combinations as well as mechanical innovations. There is an urgent need to strengthen the capacity of national and regional research organizations to generate an efficient sequence of technical innovations that are feasible and profitable for small farmers subject to severe budget constraints (Johnston, 1978).

Nor will the existence, or discovery, of high-yield 'technical packages' usually be enough. For success they will need to be preceded by (or, at least, combined with) improvements in cropping and tillage practices. To ensure that all this complex information is readily avail-

able to the farmer will require wider and faster-reacting extension service systems than are presently available in most countries. Extension services are the critical link between research and farm practice. Providing for a dialogue between African farmers and researchers is difficult at present, but is essential for increasing the impact of research on farm productivity and output. Furthermore, to avoid costly errors, the introduction of new techniques and inputs should be done with an adequate understanding of the full farm system (Johnston, 1978). Narrowly conceived and implemented innovations could have unexpected and adverse consequences.[30]

With greater pressure on land resources there will be increased need for government assistance in planning land use (Lele, 1975) to facilitate soil conservation and define property rights and markets in land as the old patterns of shifting cultivation and communal access give way to sedentary agriculture with some form of permanent rights to land. Governments can also expect to play a more significant role in management of water resources. In present-day Africa irrigated agriculture is expensive and technically demanding. In the short and medium run it makes more sense to focus adaptive research and development programmes on the predominant rainfed mode, including the semi-arid areas which are increasingly being brought under cultivation. But in the long run irrigation could have a greater role and some attention needs to be given to accumulating hydrological data and beginning to acquire the necessary technical expertise and experience for the design, construction and management of irrigation schemes.

*Third*, one readily transferable technical innovation, the tractor, should be approached with extreme caution. The experience with tractorization schemes in sub-Saharan Africa is, on balance, adverse (for example: Kline *et al.*, 1969; Lord, 1973; de Wilde, 1967; Amarshi, 1969; Clayton, 1972; and Collinson, 1965). Most tractorization schemes have been characterized by overcapitalization, poor organization, inadequate repair/maintenance facilities, unproductive and inefficient use of machines, high land-clearing costs and insufficient increases in output. And, in contrast with biologically-based innovations, tractorization is typically labour-displacing. Recent research (using detailed linear programme modelling of farm systems) by the World Bank on the comparative economic profitability of manual, oxen-based and tractor technologies in the context of Sukumaland farming systems, found tractors inferior to oxen cultivation, even when it was assumed that all of a village's land was farmed as one unit. This was *a fortiori* the case for individual peasant holdings.[31]

This does not mean that African farmers should be condemned in perpetuity to the presently prevailing system of manual cultivation based on the hoe. There is great scope for equipment and tillage innovations which interact with biochemical innovations in raising yields. The potential from improved tools and implements is particularly promising for oxen-based farming systems, wherever soils, topography and the tsetse fly permit. Indeed, a *fourth* element of a smallholder-oriented development strategy would be the institution and encouragement of oxen cultivation and related propagation of new tools and implements. It must be emphasized that this is no overnight panacea. Breeding programmes need to be developed for stronger, more effective oxen for cultivation. A broader range of implements and tools has to be developed, tested, produced and marketed, especially if draft animal power is to be harnessed to a wider range of farm tasks than is currently the case in the few areas where oxen are used for cultivation. The integration of draft animal power into farming practices will also require changes in social customs and attitudes towards the role of cattle and in the rules governing their access to grazing land. But the potential is there. Animal draft power is an indigenous resource, and farm incomes can be raised directly and indirectly by a close integration of crop production and livestock activities. Furthermore, local, small-scale manufacture of a widening range of hand-tools and animal-power implements (such as ploughs, cultivators, seed-fertilizer drills and planters) can stimulate the growth of rural-based manufacturing activities, especially the growth and diffusion of metalworking and other technical skills essential for the evolution of broad-based manufacturing capabilities (especially, in simple capital goods production) and the associated expansion of non-farm employment opportunities. The burgeoning rural workshops of India, Pakistan, the Republic of China and the People's Republic of China have proved to be fertile ground for the development of efficient and increasingly sophisticated small-scale manufacturing enterprises (Johnston, 1978).

The *fifth* component of a smallholder strategy must be to reduce the transport and marketing margins between the peasant and the point of final sale. Principally, this will involve improvements in physical transport infrastructure, especially feeder roads and storage facilities, and measures to increase the operating ef-

ficiency of marketing and transport intermediaries (Lele, 1975). The inefficiency of parastatal marketing and transport agencies is a particularly pressing problem in étatist countries, where their role is much greater. Measures to improve their efficiency will be part and parcel of efforts to increase overall parastatal efficiency in these countries through specification of clearer objectives and targets, tighter discipline on overmanning and financial management and worker incentives. In addition, where relevant, governments could consider imposing some countervailing competitive pressure on the public marketing bodies through allowing the role of private traders to expand.

Finally, as population pressure increases, African farming is likely to encounter some problems of agrarian structure, problems that have hitherto been much less conspicuous in Africa than in Asia and Latin America. The one large country in which a feudal, landed aristocracy weighed heavily on peasant efforts and rewards, Ethiopia, has recently undergone the liberating process of a surgical land reform, which bodes well for the future of its peasants (Cohen *et al.*, 1976). In Tanzania, the 1974–1976 villagization programme was associated with considerable *de facto* land redistribution, and the present system is unlikely to engender serious problems of agrarian structure in the foreseeable future. The same cannot be firmly asserted for Kenya and Sudan. In both countries there is evidence of growing land concentration. In the Kenyan case the greater proximity of the 'land frontier' presages more imminent problems if the trend is not stopped or reversed.

### (c) *The role for industry*

Though the manufacturing sector now contributes from 10 to 15% of GDP in the sub-Saharan African countries, its contribution to employment has been no higher than 2–3% of the labour force (this refers to data from industrial surveys; the figure may be 3–6% if various informal-sector units are also included). Typically 80% or more of industrial value-added is in import-substituting activities, principally in 'early-stage' lines like food and beverage processing, textiles, garment manufacture, wood products, paper and printing along with a sprinkling of very capital-intensive projects in cement, fertilizers, metal-processing and petroleum-refining. The studies cited earlier showing the substantial bias in policy frames against agriculture also document a heavy bias *within* the industrial sector in favour of import-substituting activities and against exports. They also point to widespread economic inefficiency in industrial activities, whether measured by 'domestic-resource-cost' criteria or levels of effective protection necessary to keep enterprises solvent. The inefficiency of industrial enterprises is attributable to a variety of causes including some that are simply characteristic of 'infancy':

(i) lack of competitive pressures due to heavy protection granted by the policy frame;
(ii) uncertain and chaotic implementation of quantitative import restrictions, confinement schedules and other market-fragmenting devices;
(iii) scarcity of management cadres and middle-level industrial skills;
(iv) inefficiencies and interruptions in supply of key supporting infrastructure inputs such as transport, power and water;
(v) virtual absence of industrial consultancy and technical services;
(vi) policy discrimination against small-scale enterprises, which are frequently the training ground for indigenous entrepreneurs;
(vii) special problems of parastatal enterprises, such as diffuse objective, excessive and insufficiently co-ordinated government intervention, and weak incentives for managers and workers.

The nub of this sorry summary is not that sub-Saharan African countries should not industrialize, but rather that certain kinds of costly errors and 'non-solutions' should be soft-pedalled, while some positive actions are supported. Some of these issues are now elaborated.

#### (i) *Import substitution vs import-substitution policies*

A remarkably common fallacy is one which says: most early industrial activities in low-income countries will be of an import-substituting nature, *therefore* industrial policy should have a strong, generalized import-substituting bias. As noted above, the poverty in logic is not reduced by the weight of historical evidence. Import-substituting activities frequently have been economically efficient options in early development stages in many of these countries owing to the natural protection offered by transportation costs and their natural resource endowments. But that does not, in itself, justify a set of *policies* biased in favour of import-substitution. In particular, it does not justify the heavy recourse to quantitative restrictions, import bans and tariff structures characterized by

high and widely differentiated rates of effective protection.

This should not be read to mean that there is never a sound case for protecting industry. The generalized infant industry arguments (such as skill acquisition, growth of entrepreneurship) may well warrant a moderate degree of special advantage for industry relative to other sectors. Ideally, this should be at a uniform rate (20–30% as a rule of thumb) for all industrial activities and should not discriminate between import-substituting and exporting options. There may be certain exceptional cases which warrant greater inducements for special reasons. Thus the metal-working sector may be particularly favoured for its special possibilities for skill acquisition *and* the longer-term capability for technological adaptation; otherwise poor countries may remain permanently dependent on inappropriate technologies imported from developed countries with totally different factor endowments (Acharya, 1974).

In granting such special treatment to industry, three considerations should be kept uppermost. First, it is vitally important to maintain some competitive discipline toward the nascent industries. Hence tariffs-cum-export subsidies are to be preferred to quantitative import restrictions. The latter are not only indeterminate regarding the degree of special advantage conferred, but also encourage the growth of oligopolistic structures, where a few, privileged early entrants carve up the implicit rent in the restricted market. Second, the notion of infancy as a temporary state should not be forgotten. There needs to be some recognition of the desirability of future reductions in the special advantages initially granted. Finally, the concern with price-interventions should not preclude the development of 'structural' supports to industry such as technical and consultancy services, account and audit training, and improvements in physical infrastructure.

(ii) *The role of regional common markets*

The most prominent experiment in regional market integration in sub-Saharan Africa has been the East African Common Market.[32] The experiment accomodated two distinct motivations. First, the adoption of a common external tariff, with much higher rates for manufactured products, may be seen as an extension of national import-substitution policies, with the protective wall shifted from national to regional frontiers (Robson, 1968); in this version market forces are allowed to determine the inter-nation distribution of the increases (and decreases) in manufacturing induced by protection. The second motivation gave greater emphasis to intergovernmental policy agreements for inter-nation distribution of some key industries, characterized by large economies of scale.

In practice both themes have run into difficulties, related essentially to nationally perceived inequalities in the distribution of gains and losses. Based on her early industrial lead, Kenya made the greatest import-substituting use of the common protecting policy. However, over time this became a mixed blessing. As the 'lagging' partner countries gradually import-substituted against Kenya's early regional export pattern, Kenya sought out 'more advanced' manufactures for sale to partner countries. While this shored up her share in the regional market, it took her away from relatively simple manufactures and instead encouraged a type of specialization in manufactures in which Kenya did not have a long-run comparative advantage with respect to the much larger and more dynamic, extra-regional market (Porter, 1974). As for the more *dirigiste* 'allocation-of-regional-industries' efforts, they were almost invariably overtaken by subsequent decisions of partner countries not to abide by the initially agreed allocation (Robson, 1968).

The East African effort has ultimately foundered on the rocks of political disagreements, but the underlying economic rationale was not beyond question. It has been sometimes argued that the countries were too similar in industrial structure and stage of development and, in practice, too averse to genuine intra-market specialization, for the experiment to flourish in the long run.

Similar schemes towards regional economic integration have developed in Western and Central Africa. Two of these are confined to Francophone countries, viz. the West African Economic Community (CEAO) grouping the Ivory Coast, Mali, Mauritania, Niger, Senegal and Upper Volta, and the Central African Customs and Economic Union (UDEAC) comprising Cameroon, the Central African Empire, the People's Republic of Congo and Gabon; their origins date back to pre-independence days. New on the scene is the 16-member Economic Community of West African States (ECOWAS) which became operational only in 1977 and whose membership includes that of CEAO plus Benin, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone and Togo. All these schemes aim at establishing common markets with particular emphasis on industrial development. Another common trait is the diversity between members in resource endowment and level of economic

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development: each grouping includes comparatively rich coastal countries alongside landlocked countries that are among the 'least developed'. In order to ensure fair sharing of the benefits of regional development, each treaty therefore provides for mechanisms to compensate for losses in fiscal revenues due to changes in trade shares, as well as 'development funds' to assist the poorer member countries in particular.

UDEAC, in its present form, has existed for about a decade and has, on the whole, been reasonably successful. Bones of contention have been the allocation of new industries between member countries and the distribution of revenues from the Solidarity Fund; both these issues led Chad to withdraw from UDEAC in 1968. CEAO started operating at the beginning of 1975 and so far appears to be developing smoothly if modestly. ECOWAS is just beginning to function. Its large and widely diverse membership makes it the most ambitious effort at economic integration in West Africa yet. It will take strong determination on the part of the Community's principal partners – Nigeria and the Ivory Coast – to turn it into a success. Preliminary indications are that the scheme is indeed obtaining full support from these two governments, as well as from smaller countries such as Togo or Senegal which would be particularly interested in exploiting wider regional markets for their potential exports of manufactured goods. Only time will tell whether the rationale of reaping scale economies through market integration will be fulfilled or whether the experiment will fall prey to vicissitudes of the kind encountered in East Africa.

(iii) *Prospects for manufactured exports*

It is likely that for the next decade or so the main thrust of industrialization in sub-Saharan Africa will continue to be along import-substituting lines. The main reasons why the outlook for manufactured exports is limited are:

(i) the policy bias in favour of import substitution;
(ii) the small stock of skilled and highly productive workers;
(iii) high wages for unskilled labour (compared to, say, South Asian countries); together with the weak artisan tradition, this leads to high unit labour costs;
(iv) the high cost of expatriate technical and managerial personnel, who continue to man many industrial enterprises;
(v) a relatively high supply price for foreign risk capital, owing to uncertainties over political stability and exchange rates;
(vi) high transportation costs, particularly for land-locked countries, and/or the inadequacy of transport infrastructure;
(vii) weak tradition of African entrepreneurship;
(viii) the small processing margins prevailing in many primary, processed commodities; and
(ix) the low efficiency of parastatal, industrial enterprises.

The prospects will, of course, improve if the policy bias against exports is eliminated through tariff reform, export subsidies, and free trade zones. But since many of the other constraints are less tractable in the short run, not too much should be expected in the way of manufactured export increases in the next decade, except in a few resource-exploiting activities.

In the long run the need to develop manufacturing export capability will become more pressing; in some relatively land scarce countries, like Kenya, it has already become so. Assuming population growth at 3%/year, *per capita* income increases of 2–2.5%/year, and an income elasticity for food of about 0.6, Africa's demand for food is likely to grow at over 4%/year. With the failure over the last 15 years of food production in Africa to keep pace with population growth, increments in effective demand for food due to income growth have increasingly been met through imports. Increases in food production have come mainly from the extensive margin. If future food deficits are to be kept manageable, output increases need to be more rapid and to come increasingly from improvements in factor productivity and/or shifts of acreage from cash crops to food. Basically, rising demographic pressure will increase the competition for land use between food and cash crops. In whichever way this is resolved, the demand for foreign exchange will increase: either to purchase more food abroad or replace the export earnings lost through substitution of food crops for export crops. To meet this demand for foreign exchange, labour-intensive manufactured exports have to be developed. To prepare for this predictable stage of development it is necessary to institute, as soon as possible, policies to reduce the obstacles to manufactured exports cited earlier. Countries facing greater pressure on arable land and dimmer prospects for agricultural productivity increases will need to devote correspondingly greater attention to augmenting their manufactured export capability.

Finally, with growing exploration and exploitation of mineral resources, a number of sub-Saharan African countries can expect to

enjoy increases in earnings from mineral exports like oil, iron ore and bauxite. While the rents from such resources will bring welcome relief from the foreign exchange bind, countries with growing mineral sectors will need to guard carefully against the problems of a highly distorted wage structure, neglect of agriculture and urban bias, which have plagued mineral producing African countries over the past two or more decades.

(iv) *Small-scale industry*

The scope for small-scale industry in Africa is largely uncharted but potentially significant, especially if small businesses can be induced to weld mutually supporting links with rural income growth. Among the main lessons for government policy are:

(i) Existing discrimination against small-scale enterprises with respect to the allocation of inputs should be eliminated.
(ii) Overly bureaucratic attempts to foster small-scale industrial estates should be avoided (they frequently turn out to be highly discriminatory and not really small-scale).
(iii) The non-tradeable nature of the products (usually because of their low quality and lack of standardization) of informal-sector manufacturing enterprises, and hence the limited market for them, should be recognized, and care taken that the domestic market is not pre-empted by higher-quality, standardized production from large- and medium-scale plants (Little and Mazumdar, 1977).
(iv) Private initiatives and effort should be encouraged rather than criticized.

Perhaps the best prospect for the development of small-scale industry lies in fostering close links with the anticipated transition to a science-based, land-intensive agriculture that makes increasing use of implements and tools manufactured by indigenous, small-scale industry. History has demonstrated how the rural workshops of India, Pakistan, the Republic of China and the People's Republic of China have often progressed from the manufacture of relatively simple elements such as ploughs and carts to seed drills, electric motors, diesel engines, stationary threshers and power tillers. Moreover, production of one or more farm inputs has often led to the manufacture of consumer goods like electric fans, bicycles, sewing machines and producer goods like oilseed expellers, lathes and hand drill presses (Johnston, 1978). Because of the pervasive importance of metal-working skills, the technical and managerial capabilities bred in rural workshops can greatly enhance the development of a light engineering industry, which is crucial for the assimilation of more complex (and appropriate) manufacturing technologies.

(v) *Special problems of parastatal industry*

Most of the special problems of parastatal enterprises in Africa stem from an inadequate specification of goals at the firm level, insufficient autonomy with respect to the policy instruments available to a firm's managers (such as pricing, hiring/firing and investment), and a weakly articulated system for monitoring and 'policing' performance. Some tentative suggestions for reform include:

(i) Specification of simple, efficiency-oriented goals; these could be physical output targets, but financial profitability may be an easier criterion to apply given the past familiarity with such signals and the problems of physical targeting for multi-product enterprises. Of course, this would require prior reform of the macro-incentive frame so that financial results bear a close correspondence with economic performance.
(ii) Given the acute scarcity of experienced and skilled personnel, centralized approaches to industrial development should be eschewed, as they demand complex and detailed co-ordination. With greater reliance on (reformed) market signals, scarce administrative talent can be conserved. Such a decentralized approach would be associated with greater autonomy (and responsibility) for firm-level managers.
(iii) The 'policing' of performance will, ultimately, demand political preparedness to penalize unsuccessful managers. In the case of public monopolies or oligopolies, countervailing pressure from imports or some licensed private producers may be desirable.

None of the above quite solves the conundrum of how to internalize entrepreneurship, innovation and capacities for technological adaptation in state-owned-and-managed enterprises.

### (d) *Priorities for education*

It is now widely agreed that education and training policy in sub-Saharan African countries must: (i) emphasize primary and adult education; (ii) give greater weight to vocational and

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technical skills at post-primary levels; (iii) restrict the growth of post-primary formal education to be in reasonable balance with manpower needs; and (iv) undertake thoroughgoing curriculum reform at all levels.

No one challenges the need for expansion in primary schooling. The issues relate to the pace of expansion, the content of schooling and the modes of financing. Since the late 1960s many of the low-income, African countries, especially in East Africa, have set target dates for universal primary education, and have generally accelerated the growth of primary-school enrolments. As there has simultaneously been a trend towards abolition of all fees for public primary schools (which are usually responsible for nearly all primary education), these countries have faced rapid increases in budgetary expenditures on education. Thus, for example, in Kenya recurrent budget expenditures on education grew at the annual rate of 21% between 1964 and 1975, by which time they were claiming 28% of the total recurrent budget. Projections made in the early 1970s saw this share rising to 53% by 1983/1984. In Tanzania, the original target date of universal primary education (UPE) of 1989 was brought forward in 1974 to 1977, which implied that recurrent budget expenditure on primary education alone would rise from about 6% of total recurrent revenues in 1974/1975 to 16% in 1983/1984.

That increases of this magnitude were likely to cause severe problems of financial management has become progressively clearer to policymakers in both countries. Thus in late 1975 the Kenyan Government established a National Committee on Educational Objectives and Policies (NCEOP), to advise on education structure and policies within the specified constraint of education expenditures not exceeding 28% of the recurrent budget. The NCEOP advised a slowing down of primary-school enrolment growth, reduction of the intake into secondary schools to conform with anticipated manpower needs, and the regulation of the explosive growth rate of private, secondary 'harambee' schools. The extent to which these recommendations will be successfully implemented remains to be seen. But the Government's seriousness may be gauged from the abolition of certain automatic teacher salary increases in 1975 and the severe rationing of promotions. In Tanzania, at the Government's request, the World Bank carried out a study of the fiscal implications of the new UPE target, which outlined a number of cost-saving options such as 'double-shifting' of classes, reduction in real teacher salaries through allowing deliberate erosion by inflation and a reduction in the number of years of primary schooling.

In reconciling the desires for rapid expansion in primary schooling with obvious financial constraints several countries, like Tanzania and Somalia, are experimenting with the use of untrained teachers (such as national service personnel) and village self-help schemes to build classrooms and teacher housing. How far these mobilization efforts can bring about lower-cost delivery systems for mass education will depend crucially on the degree to which they become *permanent* features of the education system, as distinct from temporary recourses to cope with problems of transiting from, say, 50% enrolment ratios to 95% enrolment ratios. In recent years Ethiopia has gone far in instituting such long-term education-system reforms. Less trained and lower-paid teachers are being deployed as part of a 10-year programme, not just to cope with a temporary bulge in enrolments. A major portion of the recurrent cost of teachers is being borne by the newly formed peasant associations, which, in turn, rely on contributions from individual households.

Most of these countries are also pushing ahead simultaneously with adult literacy programmes. Aside from its basic human-rights aspects, such efforts are to be commended on the presumption of positive links between literacy and agricultural productivity. However, it must be recognized that the resources being mobilized (sometimes on a semi-voluntary basis) for adult literacy programmes frequently compete with those being marshalled for accelerated programmes of primary education. Furthermore, the concentration on quantity and population coverage may be detracting from the quality of education, particularly from the simultaneous efforts to restructure curricula to match education with the pupil's anticipated role in society, which usually implies giving greater weight to practical work and agricultural matters.

While the need to keep the expansion of secondary-school facilities in rough balance with skill demands is generally recognized, the political pressures for increases have been so great that few countries have been able to follow Tanzania's lead in bringing down the ratio of primary-school leavers entering secondary schools from 36% in 1962 to 11% (including enrolments in private secondary schools) in 1974. Thus, for example, the ratio stood at 31% in Kenya in 1975/1976 and 49% in Sudan in 1976/1977.

Finally, the virtually automatic tendency

towards free primary education in most of these countries may be questioned. Given: (i) the burgeoning demand for all types of social services and the associated growth in recurrent budgetary expenditures; (ii) the strong demand for education; and (iii) the difficulty of finding tax handles in rural areas which do not induce resource misallocation or are easy to evade, it can be argued that primary-school fees aimed at partial cost recovery can reduce the pressure on government savings, without frustrating the spread of education or being fully offset by a decline in household savings. Furthermore, to the extent that the cost of educating children affects decisions on preferred family size, fees for primary education may be expected to have a restraining influence on the rate of population growth.

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### (e) *Meeting other basic needs*[33]

The objective of meeting the basic needs of a nation's population is unassailable. The economic issues, arising out of the fundamental economic problem of resource scarcity, relate to scale and phasing of programmes and the design of delivery systems. Amongst the sub-Saharan African nations, Tanzania, Ethiopia and Somalia have gone farther than others with basic-needs approaches. Not enough is yet known about the Ethiopian and Somalian experience to warrant any conclusions. Tanzania's experiences yield some tentative insights.

First, the topography and physical environment of the country have a profound influence on the cost of meeting a given basic-needs target. Thus, in the case of rural water supply, Tanzania's plateau formation and geological structure sharply limit the technical possibilities for low-cost shallow wells of the kind prevalent in South and East Asia. Instead, recourse must be had to high-cost deep bore-holes and surface reservoirs. A recent, detailed study by Bank staff of technological alternatives for rural water supply in Tanzania estimated that the capital costs of going from about 35% coverage of the rural population in 1975 to full coverage by 1980 would range from 2.5 to 3.7 billion Tanzanian shillings (1976 prices), or from 300 to 400 million US dollars. Expenditures of this magnitude would swallow up between 15 and 25% of the capital outlays proposed under the Third Five-Year Plan, that is from *three* to *five* times the share actually allocated to this head under the Second Five-Year Plan (1969–1974). Universal rural water supply by 1980 had been enunciated as a goal in 1974. But the massive requirements in capital resources, technical manpower and organizational skills persuaded the Government, in 1977, to postpone the target date to 1991.

Second, it is all too easy to underestimate the organizational difficulties associated with an extremely rapid geographical spread of a freshly designed, basic-needs delivery system. Since the late 1960s Tanzania has undertaken far-reaching reforms in its health services, designed to convert an urban-oriented, élitist service to one serving the masses, the vast majority of whom live in rural areas. At the same time there has been a shift in emphasis from curative to preventive health care. This has necessitated root-and-branch reform of the organizational structure of the health service and the training programmes and supply logistics necessary to sustain it. A recently compiled survey of Tanzania's health sector by the Bank points to grave organizational, financial, supply and distribution problems which are presently besetting the operation of the health service and sharply reducing its potential effectiveness. It is too early to judge whether these problems are transitional or are a more permanent consequence of entrusting a very large proportion of the final outputs of the system to cadres of lightly trained para-professionals, operating in a system with very weak medical and financial accountability for the use of scarce material resources.

In any case, one important benefit of aiming for universal access to social services like education, water supply and health facilities has been the steady, and welcome, erosion of the inherited urban bias in these systems.

On the debit side, it would seem that the demand for rapid expansion of social services, along with the public employment increases that this accommodates, has led to much more rapid increases in government employment rolls than in the complementary inputs of materials and transport necessary to make them effective. Thus in Tanzania between 1972 and 1974 there was a net increase in government employment of some 20,000, on a base of approx. 130,000. This increase, together with wage increments, put enormous pressure on the Government's recurrent budget in the mid-1970s and entailed reducing the relative supplies of complementary inputs. In effect, the overly rapid proliferation of public employees charged with delivering social services represented investment in scarce human capital which remained underutilized because of constraints on the availability of complementary inputs.

Furthermore the accent on free government

Table 9. *Central government expenditures and revenues* (per cent of current market price GNP)

| | | Recurrent revenue | Recurrent expenditure | Recurrent surplus | Development expenditure | Total expenditure |
|---|---|---|---|---|---|---|
| Étatist countries | | | | | | |
| Ghana | 1959/1960 | 12.6 | 10.6 | 2.0 | 6.5 | 17.1 |
| | 1965 | 17.9 | 13.8 | 4.0 | 8.9 | 22.7 |
| | 1970 | 19.2 | 14.7 | 4.5 | 4.5 | 19.2 |
| | 1975 | 13.5 | 15.6 | −2.1 | 5.4 | 21.0 |
| Guinea | 1960 | 13.4 | 14.3 | −0.8 | – | – |
| | 1965 | 15.2 | 7.6 | 7.6 | – | – |
| | 1971/1972 | 26.1 | 23.9 | 2.2 | – | – |
| | 1975 | 23.1 | 21.2 | 1.9 | – | – |
| Sudan | 1962 | 10.8 | 8.8 | 2.0 | 3.3 | 12.1 |
| | 1965 | 10.9 | 9.9 | 1.0 | 4.4 | 14.3 |
| | 1970 | 16.9 | 16.3 | 0.6 | 2.6 | 18.9 |
| | 1975 | 20.2 | 19.2 | 1.0 | 8.0 | 27.2 |
| Tanzania | 1964 | 15.2 | 14.5 | 0.7 | 3.4 | 17.9 |
| | 1965 | 16.8 | 16.1 | 0.7 | 4.2 | 20.3 |
| | 1970 | 17.5 | 16.2 | 1.3 | 8.3 | 24.5 |
| | 1975 | 21.3 | 20.6 | 0.7 | 12.6 | 33.2 |
| Market-oriented countries | | | | | | |
| Ivory Coast | 1960 | 20.0 | 16.3 | 3.7 | – | 16.3 |
| | 1965 | 21.3 | 15.5 | 5.8 | 5.2 | 20.7 |
| | 1970 | 21.3 | 17.0 | 4.2 | 7.9 | 24.9 |
| | 1975 | 21.4 | 17.7 | 3.6 | 6.9 | 24.6 |
| Kenya | 1963 | 14.0 | 15.0 | −1.0 | 4.0 | 19.0 |
| | 1965 | 15.0 | 17.0 | −2.0 | 3.3 | 20.2 |
| | 1970 | 20.1 | 18.1 | 2.0 | 7.1 | 25.2 |
| | 1975 | 22.0 | 20.0 | 2.0 | 10.2 | 30.1 |
| Malawi | 1958/1959 | 8.4 | 8.3 | 0.1 | 3.6 | 11.9 |
| | 1965 | 12.2 | 18.3 | −6.1 | 5.3 | 23.6 |
| | 1970 | 16.6 | 18.5 | −1.9 | 10.6 | 29.1 |
| | 1975 | 12.7 | 11.9 | 0.8 | 8.3 | 20.2 |

Source: World Bank data.

services has tended to reinforce the 'dependence' on government as the ultimate provider of 'goodies' and to slow the growth of participatory decision-making at the village level. This tendency was noted in the Tanzania health sector study cited earlier, which recommended local contributions and user charges on the grounds that such local, co-operative financing would also strengthen the accountability of health workers to their client population, thereby enhancing local participation. Similar problems have afflicted rural water supply systems in Tanzania particularly severely; lack of interest and commitment appears to have been a factor in keeping 10% of an inventory of water supply systems in 1975 inoperative and another 30% subject to sporadic interruptions of service, even though 98% of them were in sound mechanical order (Engstrom and Wann, 1975). A fee for even partial cost recovery could encourage the villagers' sense of responsibility for these systems, and enhance better local maintenance. It might also serve to relieve the financial constraints on supply of recurrent inputs like fuel. In the final analysis, a priced but functioning rural water supply system is likely to yield greater social benefits than a free and inoperative one.

In general, the present limited capacity for operation and maintenance in many sub-Saharan African countries argues against excessively fast expansion of expensive social overhead capital structures requiring skilled maintenance. Basically, for costs to be manageable and operation effective, the evolution of simple, low-cost, replicable delivery systems must precede, or, at least, accompany, the massive growth of social service networks.

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(f) *Mobilizing domestic resources*

As Table 9 shows, both étatist and market-oriented countries generally achieved considerable success in raising their revenue-to-GNP ratios between 1960 and 1975, often by orders of 60% or more. However, the concomitant, and frequently faster, growth in recurrent expenditures severely constrained the growth of government savings, as measured by the ratio of recurrent budget surpluses to GNP. Given the recurrent budget claims for past development projects and continued pressure for increased social services, it would be unrealistic to expect much of a savings dividend from the budget. Indeed, in several countries, unless the expansion of social services is accompanied by the institution of cost recovery measures and much greater local 'self-help' efforts, the government could become a significant net dissaver. Nor, given the historical correlation between expenditure and revenue growth, can much solace be sought from further increases in revenue ratios. Indeed, it may make more sense to aim for a target revene-to-GNP ratio and then tailor expenditure decisions to live within that constraint. Otherwise income might be progressively diverted to an entity with a demonstrated record of poor incremental savings behaviour, namely the government.

Thus, in the next decade or so, the task of generating adequate domestic savings must lie principally with parastatals and private agents. In the étatist countries, parastatals must assume a large share of the savings responsibility. To a great extent the measures to increase parastatal efficiency, discussed earlier, will help to increase their savings; they need not be rehearsed again here. Basically a parastatal savings strategy must embrace two themes: one for generating higher gross surpluses in the first instance and another for protecting these surpluses for investment finance, instead of having them transferred to sectors or entities which use this finance for consumption. In pursuing the latter aim it may be worth experimenting with various kinds of earmarking devices.

The role for private savings is likely to remain larger. This will certainly be the case in market-oriented countries. In both groups of countries, to the extent that policy frames encourage income and productivity growth of units (like farms and small-scale businesses) which combine saving and investment roles, the inducements for increased effort and investment may be enough to call forth the increases in savings necessary for self-financed investment. However, it can be anticipated that with greater urbanization the proportion of households who are not also direct investors, will increase. Hence there is likely to be a greater role for financial institutions to mobilize such potential household savings and allocate them efficiently. This, in turn, will require reforms in financial institutions and more active interest rate policies than have been pursued hitherto [see, for example, IBRD–Kenya (1975)].

(g) *Formal-sector wage policies*

The social costs of an overvalued wage structure and too rapid a growth in formal-sector real wages were analysed in Section 2. The benefits of a lower real wage (and slower growth) follow conversely, but may be briefly recounted. First, a lower real urban wage will, other things being equal, mean reduced urban–rural income differentials. As a consequence the demand pull for rural-to-urban migrants would be reduced, as would the associated problems of urban unemployment and poverty.[34] Second, a lower real wage should, in a protected, cost-plus pricing system, be associated with lower prices for manufactured goods purchased by rural dwellers than would otherwise be the case, in other words implying a reduction in the implicit tax on agricultural incomes exerted by protected non-agricultural activities. Third, lower unit labour costs in the formal sector should enhance the competitiveness of potential manufactured exports. Fourth, lower labour costs should augment corporate or parastatal surpluses and reduce government recurrent budget expenditures, thus, on balance, increasing domestic savings. In an étatist economy an increase in parastatal surpluses should not be associated with any worsening of the urban household income structure, a possibility which clearly exists in the case of private corporate surpluses which typically yield income to richer segments of the household distribution. Finally, the lower attractiveness of wage employment should increase the relative attraction of non-wage income opportunities, such as small enterprises and craft occupations. Thus, a lower real wage (and/or slower growth) should have unambiguously favourable effects on economic efficiency and growth, and a mixture of effects on income equity, though the latter on balance are likely to be favourable, especially in the étatist countries.

(h) *Role of external assistance*

Sub-Saharan Africa has been a particularly favoured beneficiary of concessional external assistance. Thus net inflows of concessionary

capital between 1970 and 1975 cumulated to $42 *per capita* compared to $16 *per capita* for South Aisa and $23 *per capita* for Latin America. The returns from these large transfers of capital have been constrained by both internal and external factors. The former have largely been dealt with in preceding pages. Some of the latter factors merit attention for future resource transfer programmes.

First, there have been the usual problems of country and project tying. While these features generally reduce the real value of aid and reduce the recipient country's control over investment priorities, they are of particular significance in Africa, where external flows finance larger proportions of domestic investment than elsewhere. Second, and for much the same reason, donors need to be particularly sensitive to the co-ordination problems faced by the recipient country in dealing with a large number of donors, each with some special preferences for sectors or forms of assistance; these co-ordination problems are accentuated by the scarcities of administrative/co-ordinating manpower in African countries. Third, donors have sometimes helped (whether inadvertently or not) semi-autonomous agencies in these countries (such as large parastatals) to line up support and finance for projects without adequate screening by central co-ordinating Ministries of Finance and Planning with respect to national invesment priorities. These central ministries have thus been presented by *fait accomplis* on project choice, even when the external finance involved was, in principle, allocatable according to national investment priorities.

Finally, and perhaps most importantly, donors have given insufficient attention to designing projects to suit the local conditions of weak managerial and skill cadres and fledgling institutions. Providing expatriate technical assistance to fill obvious gaps is a partial solution, but one which frequently goes astray. More fundamental attempts to design projects and procedures in line with prevailing manpower and insitutional weaknesses may be necessary for the least developed countries of Africa.

### (i) *The Sahel problem*

The Sahel countries (Chad, Mali, Mauritania, Niger, Senegal and Upper Volta) consitute one of the poorest regions in the world. With the exception of Senegal, which has a more diversified economic structure and a significantly higher income level (US$390 *per capita* in 1976), the countries are among the world's 25 'least developed countries' with *per capita* GNPs around $100 (the 1976 figure of $340 for Mauritania is 'distorted' by one important enclave iron ore operation). The five countries (that is, excluding Senegal) have a combined population of 20–25 million and cover a land area about two-thirds the size of the United States. While significant differences do exist among them, they share sufficiently common physical and economic characteristics to justify treatment on a regional basis.

In essence, the Sahel countries display in extreme form some of the handicaps shared by other sub-Saharan African countries. Thus the Sahel region is characterized by:

(i) low and highly variable rainfall;
(ii) soils with little nutrient content;
(iii) acute scarcities of educated or trained manpower; adult literacy rates are 10% or less, primary-school enrolment ratios are usually less than 20%, and secondary-school enrolment ratios are about 2%;
(iv) high transport costs because of the terrain, climate and land-locked characteristics;
(v) very high export concentration in three commodities: livestock, cotton and groundnuts; and
(vi) often divisive and hostile ethnic groups living within the framework of weak nation states.

The precarious ecological and economic balance was illustrated by the drought of 1968–1973. Foodcrop production fell between 20 and 30% below 'normal' levels, necessitating massive emergency food imports. Export crops declined sharply, for example a 30% drop in cotton in Upper Volta and a 90% decline in groundnuts in Niger. Losses of cattle are estimated to have ranged between 20 and 50% of the herds in Mauritania, Niger, Mali and Chad, and somewhat less in Upper Volta. Tens of thousands of farmers moved south to become refugees in urban centres while infant mortality and general morbidity increased. Surprisingly, the available evidence does not indicate a significant increase in overall mortality (Caldwell, 1975). According to Caldwell, 'the major demographic response to the drought has not been death but migration'. While the return of normal weather had restored agricultural production to roughly normal levels by 1975, the underlying problems persist.

Most of the recent studies of long-term development potential in the Sahel countries conclude that *technologically* it is possible for

the region to support its projected population on a sustained basis (which is not, of course, to say that the Sahel will become a major growth centre).[35] The key issues relate to finding *economically* optimal approaches and sequences to realizing the technological possibilities. These vary from subregion to subregion, but all are based on further development of cropping and livestock activities. They include:

(i) extensive and reorganized livestock breeding;
(ii) extensive and intensive dry-land farming;
(iii) extensive and intensive irrigated farming; and
(iv) resettlement in areas from which disease has been eradicated.

The general conclusions of the studies indicate, first, that the potential for livestock development is greatest in the higher-rainfall areas of the south and east, or the Sudano-Guinean subregion. It is however conditional on the control, either through animal breeding or by trypanocidal drugs, of trypanosomiasis. Second, there is substantial potential for increasing dry-land crop output through both extensive and intensive farming. Substantial increases in acreage, not necessarily at high technical levels, are suggested for Mali and Chad and moderate increases in acreage for Mauritania. *Decreases* in acreage accompanied by intensive techniques are indicated for parts of Senegal, Niger and Upper Volta. Third, although technically there is a large potential for irrigated agriculture, the high costs of irrigation indicate that it should play a secondary role until the costs associated with expanding dry-land production rise to similar levels. Fourth, settlement possibilities in disease-eradicated areas, despite the current optimism, seem to be fraught with difficulties – at least that is the initial experience with settlement of parts of the 700,000 $km^2$ area encompassed by the present onchocerciasis (riverblindness) control programme.

To cope with the critical problems created by variability of rainfall the suggested long-term options, aside from the obvious one of food imports, include:

(i) storage of excess production in good years;
(ii) a greater reliance on irrigated agriculture; and
(iii) development of a grain-based livestock industry.

At present, all three are seen as high-cost alternatives, compared with the option of food-grain imports. This is another way of saying the objective of self-sufficiency in food poses very high costs, compared with organizing agriculture according to comparative advantage.

Finally, a major mechanism for adjusting economic activity to environmental potential is likely to be migration, as it has been in the past. Previously, this has taken the form of semi-permanent migration to coastal countries, principally the Ivory Coast, as well as the seasonal movements of nomadic herdsmen. In the future there may be a greater need for non-seasonal migration amongst the Sahel countries from zones of particularly poor agronomic potential to ones better off. The extent to which such movements are accomodated by political and cultural factors remains to be seen.

## NOTES

1. There is a venerable and erudite literature on whether 'feudalism' is a relevant socio-economic category for the analysis of African social and economic history. To the amateur reader, the present summary position on the debate suggests a substantial convergence amongst conservative (such as Duignan and Gann, 1975) and radical writers (like Goody, 1971) on the point that the absence of land scarcity in pre-colonial Africa together with low-technology, shifting cultivation practices were the crucial differences, which precluded the evolution of European-style fuedalism. The exception was Ethiopia, where land scarcity, sedentary agriculture and the adoption of the plough all combined to create a land-based nobility living off the surplus generated by serf-like tenants.

2. One such example, given by Rodney (1972), relates to the active coastal canoe trade between the 'Ivory Coast' and the 'Gold Coast' which was forcibly and deliberately disrupted by the Portuguese by their fort at Cape Three Points, past which the coastal canoes had to ply.

3. This would appear to run counter to the Gerschenkron thesis (1965), which sees technological backwardness as an opportunity for rapid 'catching up' by the laggards via the innovations achieved in the 'leader' nation(s). Rodney's (1972) argument is that African societies of this period were not in a position successfully to borrow more advanced technology because 'the most dynamic groups over a great area of Africa became associated with foreign trade . . . (and) . . . the trading groups could make no contributicn to technological improvement because their role and preoccupation took their energies away from production' (Rodney, 1972, Chap. 4). A somewhat similar, anti-Gerschenkronian view is advanced by Andreski (1968, p. 36) in relation to modern Africa, when he attributes many of its development difficulties 'to the tendency

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to jump the stages' in social and economic development, induced by Africa's rather abrupt entry into the modern economic world. These views can be reconciled with Gerschenkron's (1965) optimistic interpretation of European economic development if one believes that technological disparities may spur 'catching up' in the backward economy if the gap is not too wide (and certain other favourable conditions obtain), but if the 'technological gap' is very large, then the effects of contact on the lagging economy may indeed by adverse.

4. See Kamarck (1971), Duignan and Gann (1975), and Turnbull (1977).

5. Thus, in the 1880s, the exports of sugar and cocoa from the tiny islands of Mauritius and Sao Tome, respectively, were almost equal to that of Nigeria (Duignan and Gann, 1975).

6. Such companies included the Royal Niger Company, the Imperial British East Africa Company, the British South Africa Company, the Deutsch-Ostafrikanische Gesellschaft, the Deutsch Kolonialgesellschaft, the Société de Haut-Ogooue, the Compagnie de Congo pour le Commerce et l'Industrie and the Comité Speciale du Katanga.

7. Basically, what occurred was that the dramatic reduction in transport costs brought more resources of land and labour into productive use and generated a marketable surplus over and above the ongoing subsistence activities. This is essentially a 'vent-for-surplus' view of the expansion in trade (Myint, 1971).

8. Thus the draft animals drawing artillery in the 1890s Italian invasion of Ethiopia may have brought rinderpest to Africa, which then swept across the eastern coast of Africa, killing millions of cattle. The explorer Stanley's 1887–1888 trek from west to east Africa is credited with the transfer of sleeping sickness from west to east, resulting in a prolonged epidemic around the shores of Lake Victoria, which may, over a decade or so, have accounted for 250,000 deaths (Kamarck, 1971, p. 14).

9. South Africa is excluded from this discussion; it soon became a special case of a settler nation which developed imperial ambitions of its own.

10. For detailed analyses of these policies, see Smith (1976) and Leys (1974).

11. It is interesting how conservative economists like Bauer find so much common ground with radical analysts like Leys, on the extent to which the colonial state apparatus was deployed to serve the economic interests of the settler groups.

12. The contrast with East Africa is striking. In the East African territories of Kenya, Uganda and Tanganyika, the leading firm of Gailey and Roberts controlled 4% of the import trade in the 1950s, whereas in Nigeria and the Gold Coast the United Africa Company controlled between 35 and 40% of imports during the same period (Kilby, 1975, p. 491).

13. Anyone who has lived in a tropical country should have little difficulty in agreeing with this statement. For a more authoritative citation, the reader is referred to Lee (1957). The extreme cold which is encountered in temperate climes also affects human capacities. But little agricultural activity occurs in these environments during winter and it is a more feasible proposition to design climate control around the spatially centralized, non-agricultural activities. But agriculture, the leading sector in tropical African countries, cannot be air-conditioned!

14. Below are percentages of population living in urban areas in selected African countries in 1960 (from *World Development Indicators*, 1978):

| | | | |
|---|---|---|---|
| Ghana | – 32 | Kenya | – 11 |
| Guinea | – 20 | Malawi | – 6 |
| Ivory Coast | – 20 | Sudan | – 13 |
| | | Tanzania | – 7 |

This compares with average urbanization levels of 61% for Latin America, 29% for East Asia and 21% for South Asia.

15. To varying degrees, Somalia, Sudan and Ethiopia were exceptions to this generalization.

16. This phenomenon was particularly pronounced in East Africa, where, it should be remembered, industrialization during the colonial period started earlier than in West Africa.

17. Usually, such étatism was associated with deliberate efforts to encourage 'African socialism', a philosophical viewpoint which attempts to combine the traditional, European concepts of socialism with precolonial African concepts and practices of labour-sharing and communal access to land.

18. Kenya, though a market-oriented country, also attempted to 'force' the pace of industrialization within the common protective policy of the East African Common Market.

19. Killick (1978) draws a very explicit link between the ideas of these development theorists and the development strategy choices of the Nkrumah years.

20. The factor cost data are preferred for constant price estimates because of the internal discipline exerted on the data from having to build up the GDP total, industry by industry.

21. It must be emphasized that in 1975 rural Tanzania was still suffering from the 'backwash' of the 1973–1974 droughts and the villagization programme launched in 1974, both of which impinged disproportionately on poorer rural regions; so the 'normal' intra-rural distribution should be better.

22. The estimates of income shares by groups are:

| | Lowest 40% | 'Middle' 40% | Top 20% |
|---|---|---|---|
| Chenery *et al.* (1974), for 1970 | 10.0 | 32.1 | 57.1 |
| IBRD–Ivory Coast (1975), for 1973/1974 | 19.7 | 28.7 | 51.6 |

23. It needs to be emphasized that in the search for plausible generalizations, distinctions between these two groups of countries are, sometimes, deliberately sharply drawn.

24. It should be pointed out that these village settlement schemes grew out of the recommendations of an IBRD country study of Tanzania conducted in 1959.

25. The estimate for Tanzania excludes most of the investment expenditures on the TanZam railway. Had they been included the share of agriculture in Tanzanian public investment would be significantly lower.

26. There was, of course, enormous variation across countries. Thus, for example, Ghana, Sudan and Ethiopia, were much better off with respect to trained Africans than Tanzania, Malawi and Zambia.

27. Sometimes this choice was foreclosed by the precipitous departure of the colonial power, as in the formerly Belgian Congo.

28. This stylized version is more suited to East African countries than the West African ones.

29. There might be a quantum increase in such potential if ongoing research on an anti-trypanosomiasis vaccine and on methods to propagate sterility in male tsetse flies, bears fruit. In the meantime the essential requirement is for sufficiently rapid and dense human settlement in virgin land areas to eliminate and prevent regrowth of the trees and bush which provide a habitat for tsetse.

30. One example is the advocacy for increasing yields and incomes in the Gezira through the mechanization of some of the seasonal cotton-handling activities, in which some seasonal labour bottlenecks presently prevail. If this were done, it would have extremely adverse consequences for migrant labour from poorer areas of Sudan, who now come long distances to relieve these labour shortages, and to whom the seasonal income earning opportunity is vital.

31. These cautionary remarks on tractors should not be interpreted as a blanket recommendation against their use. For certain areas and functions tractors boast a decisive technical superiority, for example in deep tillage of hard pan soils or the construction of conservation works like bench terraces. In such cases consideration should be given to the organization of tractor hire services, which hold the best promise for economic utilization of the machine's services.

32. For a recent treatment of all aspects of the East African integration experience, see Hazelwood (1975).

33. The discussion is limited to these basic needs which are, in the main, supplied by the public sector.

34. It must be emphasized that migration *per se* is not a bad thing. It often represents adjustments in labour allocation which increase efficiency and equity. For a general discussion of such effects of migration in Africa, see Adepojou (1977). What is being addressed in the text is 'excess migration' arising from differences in private and social rewards to migration.

35. These studies are: (i) FAO, *Perspective Study on Agricultural Development in the Sahelian Countries* 1975–1990, Vols. 1–3; (ii) AID, *Proposal for a Long-Term Comprehensive Development Program for the Sahel, Parts* I *and* II, and (iii) M.I. Centre for Policy Alternatives, *A Framework for Evaluating Long-Term Strategies for the Development of the Sahel–Sudan Regions*, Vols. 1 and 2.

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# Higher Education and Social Redistribution in a Socialist Society: The Chinese Case

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**Summary.** – This paper examines successive attempts by the Chinese government to equalize social opportunities by redistributing access to higher education. There has been considerable success in improving the social position of labouring class children, partly at the expense of pre-revolutionary élites, but the impact of redistributive educational policies has fallen short of leadership intentions. The main constraints are the ideological ambiguity caused by competing definitions of fairness and equality, the policy clash between equality and modernization, and the political struggle among established and emergent social strata. The educational reforms of the post-Mao era can be seen as mechanisms by which two strata – officials and intelligentsia – are asserting their ideological and material dominance over social reproduction.

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## 1. INTRODUCTION

Within the general area of discourse on problems of distribution and development, some of the most politically and intellectually contentious questions concern the distributive impact of formal educational systems. Given the importance of education as a channel of social mobility in industrialized and industrializing societies, to what extent can governments manipulate the educational system so as to redistribute social opportunity (and thus power, prestige and income) between individuals, strata and classes in favour of formerly disadvantaged groups? What is the trade-off between the social benefits of such redistributive policies and the effectiveness of the educational system in selecting talent and generating developmental skills? What are the constraints on redistributive policies imposed by the power differentials generated by unequal social systems of various kinds?

Research reports on a number of non-socialist countries in the Third World suggest that formal education is to a large extent the prisoner of its social matrix, i.e. in the absence of – and often in spite of – strong governmental counter-measures, it reproduces or reinforces the existing structure of social inequality.[1] This phenomenon is particularly visible at higher educational levels. Since senior high school and college credentials are an essential precondition for joining the new administrative, technical and professional élites – a passport to power and privilege – higher education becomes a social terrain which existing and nascent dominant classes and élites attempt to control. These structural realities have bred pessimism among development analysts over the ability of governments to use education as an effective mechanism of social redistribution.

Governments implementing socialist strategies of development, in both Marxist–Leninist and non-Marxist–Leninist forms, have shown particular sensitivity to the relationship between social redistribution and economic growth, given the importance of egalitarian ideas of various types within the socialist tradition. In countries which I shall call 'state socialist',[2] the formal educational system is the major path of social mobility since most alternative routes are eliminated by the process of socialist transformation. The fact that governments in these countries exercise direct and pervasive political and administrative controls over education, moreover, leads one to be more optimistic about their capacity to use education as a redistributive mechanism. Clearly the distributive role of education has been a political issue of considerable importance in these societies. In the Soviet Union, for example, the struggle for access to higher education between contending social groups and the intermittent attempts by members of CPSU leadership to use education as a redistributive mechanism have been a recurring feature of politics since the October Revolution.[3]

Given the increasing number of Third-World countries which have adopted state socialist institutions, it is important to examine the specific ways in which they have tackled the relationship between education and social redistribution. In this paper, I shall analyse the ways in which the Chinese Communist Party (CCP) has attempted to use the educational system as a redistributive mechanism over the three decades since the Liberation of China in 1949. My central concern is to inquire how successful the CCP has been in achieving equality of social opportunity for Chinese citizens by restructuring access to education. More specifically, I shall investigate four questions: first, how much importance has the CCP attached to redistributive educational policies over time and what methods have they adopted to achieve their policy aims; second, have the redistributive and developmental elements of educational policy proven compatible in practice; third, how successful has the CCP been both in rectifying the pre-revolutionary inequalities of opportunity and in preventing the rise of new patterns of stratified privilege and disadvantage in the new socialist society; fourth, what are the constraints which have conditioned the impact of redistributive policies and how are these related to the nature of China's state socialist social formation? The answers to these questions should provide fruitful material for comparison with other state socialist systems, both in the Third World and Eastern Europe, and with other developing countries which have different social systems but similar redistributive aims.

For reasons of analytical convenience and data availability, we shall limit the focus of our inquiry to the process of *occupational* recruitment, leaving aside the question of political mobility (most notably, the recruitment of party cadres). Moreover, we are interested primarily in *élite recruitment*, i.e. the ways in which members of rising generations have been selected to fill the higher layer of technical and professional roles, the new State intelligentsia. This level of recruitment has been based largely on performance in the formal educational system and has depended ultimately on access to higher education. Thus I shall concentrate on the question of access to colleges and universities.

In selecting people for training as skilled professionals, the Party has relied primarily on the criterion of 'talent' (*cai*) measured (until the Cultural Revolution at least) by performance in formal examinations. This criterion reflects the general priority attached to rapid economic growth and technological modernization and the need to make efficient use of the differential aptitudes of the Chinese population. On the other hand, the CCP has attempted to redistribute access to education through the 'class line' (*jieji luxian*), a principle of positive or negative discrimination in educational recruitment according to a person's class status or class origin. We shall be concerned with this effort to redistribute opportunity between social classes or strata (in contrast, say, to questions of gender or ethnicity).

These two criteria – 'talent' and class status or background – represent different concepts of 'egalitarianism'. Each criterion embodies a principle of differential access for competing social strata and classes. Selection on the basis of 'talent' is in theory egalitarian since the norm is universalistic; in practice, however, it has inegalitarian implications since certain (already well-situated) sectors of the population are better placed to succeed in academic competition. We shall call this 'meritocratic egalitarianism'. The 'class line' represents an alternative principle which we shall call 'redistributive egalitarianism', reflecting the CCP's commitment radically to improve the life-chances of both pre- and post-revolutionary labouring classes and their offspring. The other side of this coin is negative discrimination, mainly directed against the offspring of the pre-revolutionary 'enemy' classes.

These competing principles and their differential impact on aspiring new generations have been a source of social tension, political conflict and ideological debate at all levels of society since Liberation. CCP leaders have disagreed over the relative importance of 'talent' and 'class justice', and certain sectors of the population have reacted vigorously to the patterns of advantage and disadvantage embodied theoretically in each principle and implemented through official decisions on educational recruitment. In consequence, educational recruitment, and in particular access to higher education, has been a particularly important focus of political conflict between and among Party leaders and social groups.[4] We shall examine these policy issues and political processes during three main periods: 1949–1959, 1960–1966 and 1966–1979.

## 2. THE PHASE OF POST-REVOLUTIONARY REDISTRIBUTION: FROM LIBERATION TO THE GREAT LEAP

The CCP leadership identified the educational system as a major instrument for redistributing

social resources and opportunities immediately after they came to power in 1949. This basic goal was clearly expressed in the report by the then Vice-Minister of Education, Qian Chunrui, in his report to the First National Conference on Educational Work held in Peking in May 1950:

> In the whole nation, 80% of the population is composed of workers, peasants and broad masses and their sons and daughters are still basically shut outside the doors of the schools. To resolutely change these conditions . . . and to cause the various types of schools to open their doors to the sons and daughters of the workers, peasants and broad masses is something that can no longer be postponed.[5]

Ideologically this was seen as an essential part of the social meaning of revolution; politically it was important as a means to redress the social imbalance of expertise and thus help consolidate the social basis of the new regime.

The 'class line' in educational recruitment rested on official class categories [called chengfen, lit. '(social) components'] promulgated in a set of regulations issued in 1950. The regulations divided the Chinese population aged 18 and over into sectors, theoretically founded on 'how men own the means of production and how they carry on production' and practically determined by the source of a person's income for 3 years before 1949. The significance of 'class' categories extended beyond broad classes as such ('worker', 'landlord', 'capitalist') to include strata within classes ('rich peasant', 'poor peasant'), occupational groups (notably 'free professional' and 'employee') and personnel in the revolutionary state machine (notably 'revolutionary cadres'[6] and 'revolutionary soldiers'). 'Class' is thus a shorthand term for a more complex concept of social differentiation. People under the age of 18 were not assigned a class status; they derived their class origin (*chushen*) from the class status of their parents (usually of the father as 'family head').[7]

The 'class line' took a number of forms in the early 1950s: special educational facilities for worker-peasant cadres and Party members (notably the 'worker-peasant short-course middle schools' which were comparable to the Soviet Russian *rabfak* of the 1920s and were intended to train a new stratum of 'working-class intellectuals' for speedy admission to college); spare-time education for workers and peasants; basic literacy programmes and measures to provide preferential access for children from worker-peasant families to the regular educational system, notably its higher levels – senior-middle school and university or college. Beginning in 1950, special categories of applicant were singled out for preferential admission to tertiary education, including industrial workers, 'revolutionary cadres' and 'revolutionary soldiers' with at least 3 years work experience – most of the latter two groups were former peasants. Strict academic criteria were not to be applied in these cases. Section 5 of the regulations issued by the central Ministry of Education decreed as follows:

> [These categories] should be judged leniently for acceptance, even though their [exam] results may be slightly below par.[8]

Beginning in the autumn of 1952, moreover, a scholarship system was established for universities and colleges, exempting all students from tuition and residential expenses.[9] One of the motives behind this scheme was the desire to decrease the financial burden of higher education for poorer families.

As the ambitious modernization programme embodied in the First Five-Year Plan (1953–1957) got under way, however, the educational system was geared up to train the requisite specialized manpower and academic values received more emphasis in consequence. Though the principle of preferential admission to college was retained, it was made subject to stricter academic demands. In the 1953 college enrolment regulations, preference was only to be given to the favoured categories 'when [the student's] exam results reach the admission standards laid down by the subject he or she is applying for'. The 1955 regulations tightened the academic screw even further, stipulating that favoured groups could only be admitted 'when their [exam] results are the same or close to those of ordinary applicants'.[10] The same trend brought pressure on the 'worker-peasant short-course middle-schools' which found it increasingly difficult to maintain what the regular school system defined as adequate academic standards.[11] Enrolment was finally halted in 1955 by a directive from the Ministry of Education and Higher Education which declared that such 'unorthodox' special-purpose institutions were ineffective in achieving either their educational or their redistributive aims – more haste meant less speed. Their laudable goal was to be entrusted to the regular educational system and approached in a more 'regularized' fashion.[12] This process of 'regularization' and academicization of the school system meant that the existing corps of intellectuals exerted increasing influence over educational policy, notably a small body of college lecturers and professors, many of whom had

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been educated abroad before Liberation. As a group, they were not committed to radical redistribution as a key goal of educational policy and were clearly instrumental in blunting the impact of such policies during the mid-1950s. The transition from a post-revolutionary phase of class struggle and socio-political redistribution to a blander phase of stability and modernization was formalized in 1956, when the CCP declared at the 8th National Congress that 'socialist transformation' was basically over and 'socialist construction' was beginning. Though the class line in education was not to be abandoned, CCP leaders felt it could henceforth be implemented on a more long-term incremental basis and would eventually become irrelevant as the development of the productive forces expanded the range of social opportunity, as pre-revolutionary élites died out and society gradually became more homogeneous.

In spite of this trend towards a watering down of the class line between 1954 and 1956, the percentage of worker-peasant college students rose steadily from 20.5% in 1952–1953 to 29% in 1955–1956 and to 34.1% in 1956–1957. This reflected partly the increasing numbers of working-class pupils gaining access to senior-middle schools which were basically prep-schools for college and the rapid expansion of college places during this period.[13] Though considerable progress had been made, the ratio of worker-peasant college students still fell far short of their proportion of the population (over 80%). Emerson estimates that, as of 1955, there was one college place for every 100 urban families and one for every 1800 rural families.[14] Though precise statistics are lacking, therefore, it is clear that non-manual strata were faring considerably better than manual, and urban workers' families considerably better than their peasant counterparts.

To the extent that the class line proved effective, however, it met with strong resistance from educational professionals which found public expression during the Hundred Flowers Movement in 1957. University spokesmen, most of them non-Party intellectuals, argued that the class criterion, which demanded that education 'serve the workers and peasants', was incompatible with the 'socialist principle' that education should 'serve the people' (i.e. regardless of class differences). The 'class line', they maintained, was 'prejudiced and discriminatory' and had lowered academic standards.[15] A representative at a public meeting in Hunan province called for the abolition of 'preferential selection' on class grounds because it encouraged 'dependent' and 'elitist' attitudes. There was also some discontent in the middle schools on the issue. For example, students in Suzhou's No. 1 Middle School called on the government 'to rescind the ruling on the direct admission into universities of graduates from worker-peasant short-course middle schools'.

At a more general ideological level, non-Party intellectuals argued that pre-revolutionary class categories had become obsolete and should not be used to decide the future of the new generation in the Mao Zedong (Mao Tse-Tung) era. Recruitment based on class created a new form of 'inequality' by building 'man-made walls' between social strata and individuals, created new forms of privilege and disadvantage. They used the meritocratic principle of 'equality' or 'equal treatment' as a slogan to oppose what they saw as an inegalitarian principle of class discrimination.

These complaints from higher intellectuals did not merely reflect a concern to protect their own children against 'unfair' competition from children from ordinary worker-peasant families. Already in the Hundred Flowers debates, there were signs of a new set of 'class' issues which were to gain prominence in the following decade and become a central issue in the Cultural Revolution. Some critics argued that pre-revolutionary class categories had become political rather than socio-economic categories and that 'class analysis' was increasingly being used as a tool to institutionalize distributive advantages for a new privileged élite and their offspring, notably Party cadres and Party members in authoritative positions throughout the state apparatus, both military and civilian. Most higher- and middle-level officials could lay claim to the 'class' status of 'revolutionary cadre' or 'revolutionary soldier' and their children could cite these glorious 'class' origins to claim advantages in education recruitment and elsewhere. Their opponents among the non-Party intelligentsia resented this bitterly:

> Some youth are the children of revolutionaries, with no skill or contribution at all. But they are arrogant and want to secure benefits for themselves on the grounds that, in their words, 'My [class] origin is good. I'm a revolutionary child!'[16]

In 1957, the Party counter-attacked with a political campaign (the Anti-Rightist Movement), branding their critics as 'bourgeois rightists'. The Party leadership saw a radicalization of the class line as necessary to counteract the political unreliability of the intelligentsia generally and university students in particular, which had become apparent during the Hundred Flowers.

The latter were infected by 'bourgeois ideology', it was claimed, because they came from non-proletarian families:

> Some students have been deeply influenced by bourgeois thought. Among the so-called 'dregs' discovered in colleges during the (Anti-Rightist) Movement, the great majority were students from exploiting-class families. This cannot but furnish us with a lesson. On the other hand, worker-peasant students have generally maintained a clear class stand and high political consciousness.[17]

Hundred Flowers appeals for (meritocratic) 'equality' were denounced as disguised special-pleading by previously privileged groups. The correct view of 'equality', maintained Party spokesmen, was redistributive and took into account the continuing economic and cultural disadvantages of the labouring classes:

> The government has decreed some concrete policies to facilitate and speed up the transformation of the poverty and backward cultural level of the workers and peasants, such as running worker-peasant short-course middle schools, arranging for higher-level schools to open their doors to workers and peasants etc. . . . If you say this is 'class privilege', I reckon that this type of 'class privilege' is right and proper. It is one of the goals of our revolution and one of the necessities of our revolution.[18]

The official media stressed the need to produce more 'working-class intellectuals' and claimed that colleges and universities had not yet 'opened their gates wide enough' to admit worker-peasant students. Workers and peasants were 80% of the population, they argued, but they only had 34% of college places and thus lagged behind 'the bourgeoisie and the petty-bourgeoisie'. In the past, college officials had shown 'a persistently one-sided understanding of the significance of raising academic quality' and had 'neglected the need to give special concern and assistance to worker-peasant students'. Leading Party intellectual Guo Moro (Kuo Mojo) published an article in which he defended the class line and maintained that it had not gone far enough.[19] He pointed out, for example, that the higher one went in the academic hierarchy, the percentage of worker-peasants dropped: as of September 1956, while 34.4% of college students were of worker-peasant status or origin, they were only 17.5% of all research fellows and a mere 6% of research fellows in the prestigious Chinese Academy of Science. In fact, Guo pointed out, since over 40% of the last group came from former landlord or capitalist families, how could the CCP be accused of 'discrimination'?

In late 1957, the Party's main organ, the *People's Daily*, called for a radicalization of the principle of class-based 'preferential enrolment' in college admissions policy.[20] Instead of the criterion of 'equal treatment' which required worker-peasant students to reach the same academic level as other applicants before being eligible for preference, they should be admitted if they met 'minimum standards'. They should also receive more special attention *after* enrolment, such as separate classes, special guidance and financial subsidies. 'Quality' was not simply an academic concept, argued the *People's Daily*, but a combination of political and intellectual dimensions. This new policy emphasis was formalized in the revised regulations for college enrolments in 1958. These stipulated that a certain percentage of students could be admitted through 'recommendation without examinations', thus radically contravening the principle according to academic 'talent'. In general, moreover, worker-peasant applicants were to be admitted before other students *without* requiring equal marks. Some colleges established 'worker-peasant preparatory classes' to bring them up to scratch before they began their formal studies. Partly in consequence of these measures, the overall ratio of worker-peasant students in tertiary institutions rose dramatically in 1958–1959: to 48% of total enrolment and 62% of new entrants.

Table 1 provides an overview of changes in total enrolments and ratios of worker-peasant students in institutions of higher education during the 1950s.

Though the 1950s was a period of policy ambiguity and fluctuation, there was considerable progress in drawing youth from worker-peasant families into higher schools. One should be careful not to oversimplify this trend and

Table 1. *Total college enrolments and percentages of students from worker-peasant families*, 1951–1959

| Year | Enrolments | Percentage of worker-peasant students |
|---|---|---|
| 1951–1952 | 153,000 | 19.1 |
| 1952–1953 | 191,000 | 20.5 |
| 1953–1954 | 212,000 | 21.9 |
| 1954–1955 | 253,000 | – |
| 1955–1956 | 288,000 | 29.0 |
| 1956–1957 | 403,000 | 34.1 |
| 1957–1958 | 441,000 | 36.3 |
| 1958–1959 | 660,000 | 48.0 |

Sources: State Statistical Bureau, *Ten Great Years* (Beijing: 1959); Chu Yüan-cheng, 'Scientific and engineering manpower in Communist China', in Joint Economic Committee of U.S. Congress, *An Economic Profile of Mainland China* (Washington: 1968), p. 529.

overestimate the impact of specifically redistributive policies. The increase in the ratio of worker-peasant students was partly a reflection of general increases in tertiary enrolments: for example, the massive expansion of 1956–1957 entrants produced a 5.1% rise in worker-peasant students yet no special measures were used to favour them in the 1956 intake. Similarly, the leap of 11.7% in 1958 was part of an unprecedented increase in available places at the tertiary level. Such rapid expansions meant that, even when special measures were implemented to further the class line, there was still considerable scope for the children of former élite families who were culturally better prepared to survive the rigours of the examination system, and whose talents were sorely needed in the modernization programme. Though they and their parents and teachers complained about 'discrimination', its real extent was probably very limited and much of their criticism can be put down to special pleading and defence of established privilege. Thus the statement by a Shanghai university student in a debate on the class issue is not far off the mark:

> The state tries its best to educate an intelligentsia of workers and peasants, but it has not exploited the landlords and capitalists by taking away from their children a right to education. There has been no sectarianism.[21]

In the game of college enrolment, this was a period of positive-sum.

The redistributive achievement of the period appears less dramatic, moreover, when one considers the relationship between the pattern of class recruitment and the stratified nature of higher education. As Guo Moro and others pointed out, aggregate figures on increasing ratios of worker-peasant students concealed the fact that such students were more likely to be admitted to lower-quality, lower-status institutions – provincial rather than national universities, polytechnics rather than universities, short- rather than long-course institutions, less rather than more prestigious disciplines. Thus, for example, only 57.7% of the new students at prestigious Nanjing (Nanking) University were worker-peasant compared with 86% at the less famous Nanking Aviation Institute. This said, however, it must be noted that the percentage at Nanking University did increase by 25% over 1957.[22]

The redistributive element is further moderated by three other factors; first, a certain percentage of worker-peasant students were members of a kind of 'proletarian élite' of Party workers, labour models or 'advanced producers' who were granted access to higher education as a reward for their political reliability or exemplary work performance. For example, 93.5% of the worker-peasant participants in one widely-publicized 'preparatory course' for college entrance established in 1958 were members of the Communist Party or Youth League and many were 'advanced producers', 'advanced workers', 'activists in socialist construction', 'outstanding Party members' and the like.[23] Second, urban industrial workers seem to have benefitted much more than their rural counterparts. Third, many students admitted to college under the 'worker-peasant' label were in fact *former* workers and peasants currently working as political or administrative cadres. In other cases, people claimed to be 'workers' or 'peasants' when this was not strictly true – for example, rural school teachers who claimed to be 'peasants' because they lived in the countryside.[24] Thus the percentage of 'real' workers and peasants (especially former *poor* peasants) was much smaller than the aggregate statistics suggest.

As we have seen, however, even this limited amount of conscious redistribution provoked hostility and conflict. In this early period we can discern the emergence of the two major social protagonists contending over the issue of college enrolment: on the one side, the urban (primarily non-Party) intelligentsia, who were mostly from former middle- or upper-class families and were overwhelmingly committed to the criterion of academic 'talent'. They could defend this as a 'fair' principle of allocation and argue that it was developmentally essential to avoid waste of scarce talent and educational funds. Implicitly, the principle favoured their own social interests. On the other side were the political and administrative cadres in the post-revolutionary State machine, overwhelmingly recruited from worker-peasant families both before and after Liberation. They supported the class line – and political criteria in general – because they and their families stood to benefit from it and because they saw it was a just and revolutionary means to benefit their class brethren, the ordinary masses of workers and peasants. This cleavage was reflected in policy disagreements within the CCP leadership between more revolutionary elements who wished to continue policies of social redistribution into the period of socialist construction and were suspicious of the intelligentsia, and more 'developmentalist' leaders who were sensitive to the intelligentsia's central role in the modernization programme and thus supported more conciliatory policies towards the non-

labouring strata, including greater stress on academic quality and a more gradual approach to redistribution through the class line. These social and political divisions were to become clearer over the next two decades.

## 3. EDUCATIONAL ACCESS AS A ZERO-SUM GAME: THE PRELUDE TO THE CULTURAL REVOLUTION, 1960–1966

Between 1960 and 1966 the tension between the role of the education system as an instrument of social selection according to 'talent' and as a mechanism for social redistribution became more acute. The 3-year recession following the Great Leap and the Soviet Union's abrupt withdrawal in 1960 slowed the momentum of modernization. Economic constraints meant less places in colleges and less jobs for college graduates. The CCP began the decade by attempting to rein in the rocketing enrolments of the late 1950s. Total college enrolments dropped from a peak of 965,000 in 1960–1961 to 819,000 in 1961–1962 and to 695,000 in 1965–1966.

Contrary to the pattern established in the 1950s, most senior-middle school graduates could no longer expect to get into college as a matter of course. There was also a decline in the attractiveness of jobs available for educated youth. Senior-middle school graduates who failed their college-entrance exams could no longer expect to secure a reasonably comfortable (i.e. white-collar) and well-remunerated urban job. College graduates could no longer rely on their degree as a guarantee of prestigious professional occupations in the big cities, because of the decreased demand for skilled manpower, the reorientation of development strategy towards agriculture and the vast increase in the number of graduates caused by the massive enrolment expansion of 1958–1960. Between 1961 and 1966, an average of 158,000–230,000 graduated each year, compared with 93,000 during the preceding 6 years. The combination of raised expectations and decreasing educational and occupational opportunity increased the intensity of social competition and the level of anxiety among aspirant sectors of the population. As competition increased, the class line became a more sensitive issue since class origin provided a competitive edge or handicap which could make the difference between success and failure at higher levels in the educational system. These tensions were reflected in the Party where the leadership increasingly disagreed about the choice of criteria for educational mobility.

During 1960–1963, the Party leadership strove to pull the country out of recession through a general programme of economic rationalization and political demobilization. Stable modernization and economic efficiency once again became the overriding official goals. 'Talent' was reinstated as the almost exclusive measure of educational advancement. In such a context, stress on the class line was irrelevant, even obstructive. Class-based inequality of access to education tended to be viewed as a historical problem which could only be solved in the long term and was not a prime priority for the *current* policy agenda. In consequence, annual university enrolment regulations from 1960 to 1963 did not mention the class line and the literature surrounding the enrolment process was largely silent on the issue.

The renewed dominance of academic criteria and 'quality' education accelerated the tendencies towards 'academicization' and 'pyramidization' which had already made their appearance in the mid-1950s. 'Academicization' involved a number of processes: the tendency to define academic study as the almost exclusive function of formal education and academic achievement measured by formal examinations as its main output; the use of theoretical, scholastic curricula geared to exams leading to successively higher levels of education; evaluation of schools in terms of their ratio of successful candidates to higher schools; professionalization of teaching staffs and the requirement that they be able to exercise professional autonomy free from 'outsider' (i.e. Party) interference; the socialization of students, implicitly or explicitly, into a social ideology emphasizing the values of modernity, expertise, academic 'talent' and achievement and the crucial importance of the intelligentsia. 'Pyramidization' was a complex structural process producing different forms of hierarchy. The logic of an education pyramid culminating in tertiary training for the lucky few created objective and subjective distinctions between regular full-time and various types of 'irregular' schools (such as 'people-run' or 'half work–half study' schools); between general middle-school education (which could lead to colleges) and middle-level vocational education which was terminal (i.e. led directly to jobs); between special 'key-point' schools (with favoured faculty and facilities) and ordinary schools; between schools which, informally or formally, were ranked in terms of their 'fame' (in the case of colleges) or (in the case of middle schools) their ability to get their

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graduates into college. Inside schools, pyramidization led to streaming, 'teaching according to talent' and created invidious distinctions between students and classes.

The emergence of these tendencies within the educational system in the early 1960s clearly favoured the children of those strata with superior cultural resources: the urban *vis-à-vis* the rural population, mental *vis-à-vis* manual workers (intellectuals, managers and professionals above all others) and the families of pre-revolutionary élites. This type of educational system both reflected and reinforced social inequalities. It was an important means by which inequalities were converted into stratifications since it enabled college-trained élites to pass on their social advantages to their offspring. It also created sharper social tensions between 'winners' (known colloquially as 'dragons') and 'losers' ('worms') at each level of educational selection. So long as the basic logic of education remained academic and 'talent' remained the primary means of access to social opportunity, the meaning of individual failure was painfully clear, leading either to antagonism or self-belittlement.

It was with these and other problems in mind that the left or Maoist wing of the Party began a drive for educational reform, as part of a general programme of radicalization heralded by Mao's speech at the CCP Central Committee's Tenth Plenum in September 1962, in which he resurrected the theme of 'class struggle'. Beginning in 1964, the class criterion began to receive greater official attention in educational recruitment. There was considerable resistance to the new emphasis among educational professionals, the intelligentsia generally and the families of the 'bad' classes. Later accounts from the Cultural Revolution suggest, moreover, that Party leaders at national, local and basic levels were split on the issue. One can discern three broad groups among cadres and Party members at this time:

(i) Developmentally oriented officials, apparently represented in the central Politburo by Peng Zhen, Zhou En-lai and Chen Yi, who argued for an end to discrimination against non-proletarian students for several reasons: the fact that non-proletarian strata contained a high proportion of talented youth whose abilities should be harnessed to the modernization drive, the fact that the new generation of non-proletarian youth had been educated in the same post-revolutionary schools and thus socialized in ways similar to their working-class counterparts and the danger of social discontent and tension arising from the discrimination inherent in the class line. This group exerted the dominant influence over educational recruitment policy between 1960 and 1966.

(ii) 'Proletarian cadres' at all levels who came from worker-peasant backgrounds and instinctively supported the class line as a measure of revolutionary justice. They argued that youth from 'good' class backgrounds were more reliable and, though the pre-revolutionary élites could be utilized to some degree for their experience and skills, they could not be fully trusted. Judging from information made available during the Cultural Revolution, many basic-level Party and government cadres shared this view.

(iii) The 'Maoists' who shared with the latter group a suspicion of the pre-revolutionary middle and upper classes and supported a strong class line in all areas of social and political allocation to benefit ordinary workers and peasants. They differed in their application of class analysis to the emergent inequalities of the new socialist society, notably their suspicion of the new intelligentsia and their opposition to a new 'privileged stratum' of ranking State cadres who were allegedly manipulating the class line to the advantage of their own families.

It was this 'Maoist' wing which exerted increasing pressure to intensify the redistributive content of educational recruitment from 1964 onwards. They and many 'proletarian cadres' were alarmed at the inegalitarian impact of the academicization process in the early 1960s. Statistics for the period are sparse and those that exist are treacherous, since they largely derive from later polemical Red Guard accounts published during the Cultural Revolution.

One typical piece of statistical evidence was supplied by an article attacking the enrolment policies of the president of Peking University, Lu Ping, detailing enrolment percentages between 1960 and 1962 in the university's department of geophysics (see Table 2).[25] This admittedly incomplete table suggests that, for Peking

Table 2. *Class origins of enrollees*

| | 1960 (%) | 1961 (%) | 1962 (%) | 1963 (%) |
|---|---|---|---|---|
| Worker-peasants | 61 | 40 | 40 | – |
| Workers and *poor* peasants | 41 | 30 | 27 | 18 |
| Landlords, rich peasants and capitalists | 8 | 12 | 23 | – |

University at least, the redistributive thrust of the Great Leap continued until 1960 and the major change in enrolment policy occurred in 1961. During 1961, 1962, and probably 1963, moreover, the ratio of working-peasant entrants dropped sharply. The beneficiaries would appear to have been the children of the previous upper and middle classes. Statistics for 1964–1966 are almost non-existent but it appears that the ratio of worker-peasant students in all institutions of higher education may have increased gradually during this period, perhaps under the impact of increasing Maoist emphasis on the class line. A retrospective report from the late 1970s claimed that the ratio had climbed to 64.6% by 1965, though contemporary estimates by foreign scholars were lower.

The lack of reliable statistics makes it impossible to estimate precisely the actual redistributive impact of changes in recruitment criteria between 1960 and 1966. At the subjective level, however, the social atmosphere of scarcity and competition meant that changes in the official emphasis on redistributive and academic criteria caused much greater tension and hostility than in the preceding decade. The stakes now seemed higher and the distinction between 'winners' and 'losers' much clearer. We can identify these perceptions more precisely if we relate them to four different strata within the new generation:

(i) *Worker-peasant* youth: this category contained the ambiguity and internal differentiation of the 1950s. As a general stratum, they had benefited from the radicalization of the class line in college enrolment during the Great Leap but a proportion of successful entrants had been unable to keep up academically and dropped out before graduation, particularly when academic standards were tightened up after 1960. As academic enrolment criteria became dominant between 1961–1963, this stratum lost out both absolutely and relatively, but improved their position with the intensification of the class line after 1963. In general, however, they still tended to congregate in the less prestigious institutions and subjects. Class line aside, they were clearly handicapped in the educational stakes, lacking a family environment conducive to social aspiration and academic achievement and often faced by substandard educational facilities at the primary and secondary levels. As a result, they tended to fare poorly in formal exams and other tests of intellectual achievement. These problems were particularly acute for the children of poor peasant families in more remote rural areas. In general, members of this stratum tended to resent 'clever' youth, particularly those of urban intelligentsia origin. On the other hand, their resentment at educational failure was tempered somewhat by the fact that, as a group, they had lower aspirational horizons than youths in other categories.

(ii) Youth of *former 'exploiting class'* families, notably 'landlord', 'rich peasant' and (less invidious) 'capitalist'. They generally inherited superior cultural resources and benefited from the heavy academic bias of 1961–1963. As the class line intensified after 1963, they increasingly lost ground since they were doubly disadvantaged. First, the criterion of class origin made their own 'bad' background a heavy burden, blocking social advancement and creating pessimism and passivity. Second, since they could not change their class backgrounds, they tried to compensate by behaving in a politically 'progressive' way, to be or appear to be 'red'. But many basic-level political and administrative cadres in the schools tended to regard such 'redness' as disingenuous. In general, such youth and their families opposed any official policy which paid attention to the class line in educational recruitment and resented the rights and privileges it gave to students from 'good' origins.

(iii) *Children of 'revolutionary cadres' and 'revolutionary armymen'*: Their parents had already been active in the revolutionary cause before 1949 and formed the backbone of the new State machine – Party, government and army – erected in the 1950s. These youth had a privileged position. Since their 'class' origin was considered officially to be 'best' – they were the direct descendants of the real revolutionaries, they benefited most clearly from the 'class line' in socio-political recruitment. Moreover, the identity of their parents exerted informal, implicit pressures on teachers and basic-level educational administrators which led to special treatment and made direct parental interventions on their behalf – notably arranging for illicit 'back-door' admission to universities – the exception rather than the rule. Their position of privilege was reinforced by special middle schools which recruited only the sons and daughters of cadres. Their relatively favourable family environment, moreover, tended to encourage academic achievement and provided a sense of political *savoir faire* and self-confidence. They favoured the class line since it represented both their political beliefs and their social interests. They resented, on both

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ideological and interest grounds, any overstress on academic competence which favoured youth from intelligentsia and 'exploiting class' backgrounds. To them, this was politically immoral since it conferred educational benefits on people who had played no part in or had opposed the revolution. They were particularly sensitive to the challenge posed by:

(iv) *Youth from urban intelligentsia families.* This latter group was in an ambiguous but generally favourable position. Though hampered to some limited extent by their non-proletarian class origins, they were able to recoup their impaired political status through high levels of academic achievement. They resented the advantages attaching to 'good' family origins – particularly those claimed by the children of 'revolutionary cadres and armymen' – and in general opposed official emphasis on political *vis-à-vis* academic criteria for social advancement.

In sum, during the 6 years before the Cultural Revolution, the impact of the class line varied over time and across sectors of the school population. Several trends can be discerned. Children from ordinary worker-peasant households were gradually increasing their representation in institutions of higher education, though the offspring of urban workers – notably skilled workers in State industry – did far better than their rural counterparts. As a social sector, however, they were still underrepresented at the tertiary level. After the depoliticization of 1960–1963, youth of 'bad' ('exploiting-class') backgrounds found it increasingly difficult to enter colleges – their political stigma could usually be effaced only by very high levels of intellectual capacity and promise. The two groups which had privileged access to higher education were those from urban intellectual and 'revolutionary' cadre backgrounds. Each group relied on different resources to facilitate their power of access: the former primarily on their ability to pass exams, the latter on the class line and general considerations of political 'reliability' and implicit or explicit parental influence. Given these different conditions for success in the educational race, tension between these two groups was particularly pronounced and it was to find expression in the complex process of mass politics which emerged during the Cultural Revolution.

## 4. THE CULTURAL REVOLUTION AND THE 1970S

The Cultural Revolution opened up a wide-ranging debate and multi-sided conflict over issues of social mobility and educational recruitment. The very virulence of the mass movement demonstrated the intensity of popular concern about these issues, particularly the question of college enrolment. In fact, the first wave of mass organizations in schools and colleges accused Party leaders, educational administrators and teachers of discrimination against youth of 'good' class origins in recruiting university students. The CCP Central Committee and supreme executive organ of the government, the State Council, issued a notice on 13 June 1966 – in the first stage of the mass movement – which announced their intention to change college admission procedures.[26] Previous methods, said the notice, 'had basically not escaped from the system of bourgeois exams, were not conducive to carrying out the educational line of the Party and Chairman Mao and to admitting more revolutionary worker-peasant-soldier youth into higher schools'. Detailed proposals for reform were to emerge from the Cultural Revolution.

Mass involvement in this phase of the movement was almost exclusively confined to politically 'reliable' middle school and college students of 'good' class origins. The charges current in the media clearly reflected their attitudes and interests. 'Entrenched bourgeois authorities' in educational institutions, they claimed, had conspired with 'agents of the bourgeoisie' within the Party to discriminate against youth from worker-peasant 'revolutionary cadre' and 'revolutionary soldier' backgrounds in the early and mid-1960s. Some of the polemics appeared in tabloids compiled by middle-school students. For example, students from the final-year class of Peking's No. 4 Middle School made the following allegations:

> The bourgeois sirs in 'authority' boast of their children as 'fine porcelain' which looks pretty even without any flowery design on it. They viciously curse the children of workers and peasants as 'coarse chinaware' which simply cannot be made pretty by any painting. Those agents of the bourgeoisie who have sneaked into our Party have tried to use this invisible sword of entrance exams mercilessly to cut off the path leading the children of labouring people to the pinnacles of science and culture. They have done their best to discriminate against and obstruct the children of workers, poor and lower middle peasants, revolutionary cadres and revolutionary soldiers.[27]

It was alleged that too many children of 'bad' class origins had gained entrance to better colleges in the early and mid-1960s because 'they took no interest in politics and buried themselves in study'. When youth of good class origins did succeed in entering university, it was

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further claimed, it was more likely to be an inferior institution. Teachers and administrators in middle schools and colleges were accused of 'lacking class feelings for the children of workers and peasants' and of trying to embarrass, humiliate and even expel them. A Canton middle-school teacher, for example, was criticized for giving 90% for an essay by a non-worker-peasant boy which criticized the peasantry and only 55% for one written by a cadre's child describing the study of Mao's thoughts in farm labour. In Peking, bitter criticism was heaped upon Lu Ping, the President and Party secretary of Peking University, who was accused of regarding worker-peasant college students as 'teacups that leak' and of using the method of 'passing bowels' to 'discharge' them from the university if they could not stand the academic pace. Though most of these charges were probably true, they had probably been more widespread during the entrenchment period of 1960–1963 than 1963–1966 when more attention was paid to the class issue.

This call for class justice was not simply an appeal from worker-peasant underdogs – it was spearheaded by the children of 'revolutionary cadres' and 'revolutionary soldiers' who had fared very well under the old system. In taking the lead in pressing for greater attention to the class criterion, they simultaneously sought to strengthen their own prospects and damage those of their major competitors, youth of 'middling' class origins (i.e. neither 'bad' nor 'good'), notably the children of the urban intelligentsia and other white-collar workers. Jealousy of the 'middling' group was obvious, for example, in this attack on the president of Peking University:

> The Lu Ping black gang once said: 'In future the superiority in intellectual circles will be held not by worker-peasant children but by children of high intellectuals and employees'.[28]

The children of the intelligentsia, they alleged, were opportunists who longed to become 'experts' and 'professors' with consumer comforts, fat salaries, high prestige and 'political capital'. Youth from 'good' class origins, they argued – notably those from 'revolutionary' households – were *innately* reliable and politically committed and should thus be guaranteed the lion's share of social and political opportunities, at the expense of youth from 'middling' and 'bad' class origins:

> We will fill your posts in culture, science and technology. Your monopolies are broken.[29]

Thus the campaign for class justice in educational recruitment was two-sided: on the one hand, it reflected the often legitimate frustrations of ordinary worker-peasant youth who felt that the academic nature of recruitment procedures made the going difficult for them; on the other hand, it disguised an attempt by an already privileged group to protect and extend their advantages.

As the Cultural Revolution proceeded, opposition groups in schools and colleges mobilized themselves as 'rebels' in opposition to the first wave of Red Guard organizations dominated by cadres' children – they branded the latter as 'conservative'. Many of the core members of these 'rebel' groups were youth from intellectual and professional families who sought to defend their own access to higher education against the redistributive priorities of the Cultural Revolution. In their own eyes, it was they who had been the victims of class discrimination before the Cultural Revolution. Children from the 'good' classes, they alleged, had received priority in college enrolment and special treatment while at college (for example, supplementary study classes). At the middle-school level, they claimed, teachers gave special consideration to youth of 'good' origins. These complaints reflect the redistributive elements of educational policy during 1958–1960 and 1964–1966.

In making these charges, they spoke in their own interests and – implicitly or explicitly – as advocates for youth from 'bad' class origins, notably former landlord and rich-peasant families, whose ability to speak out publicly was very restricted. This stigmatized stratum, claimed 'rebel' propaganda, could be compared to the despised *burakumin* in Japan, or the blacks in the USA. The 'rebels' revived the meritocratic slogan of the Hundred Flowers movement – 'all revolutionaries of different class origins can be equal in the Mao Zedong era'.

To the Maoist sponsors and organizers of the Cultural Revolution, both of these approaches to the class line spawned by the student movement were unacceptable: the 'conservative' position because it masked the interests of a privileged stratum of cadres' children and the 'rebel' position because it contravened the main ideological theme of the Cultural Revolution – class struggle – and because it favoured the interests of a non-proletarian strata, i.e. the urban intelligentsia and the children of former 'enemy' classes. The educational reforms they introduced in the late 1960s – which included a radical attempt to intensify the class line in educational (and particularly college) recruitment – represented a serious

attempt to redistribute educational opportunity away from both new and old élites and in favour of ordinary 'workers, peasants and soldiers'. Academic criteria were down-played; élite middle schools and formal exams were abolished. A new system of college enrolment was introduced, dubbed officially as a 'voluntary application, recommendation by the masses; approval by the leadership and re-examination by the college concerned'. Instead of taking college entrance exams when graduating, senior-middle school students were now required to have at least 2 years practical work experience in industry or agriculture before being allowed to apply for university. Success in their application was to depend heavily on *recommendation* from their work-mates and from leading cadres in their work units – hence this system has been called 'the recommendation model'.[30] The end product, it was hoped, would be university students and ultimately skilled professionals who would avoid the élitist imprint of the pre-Cultural Revolution educational system and would be able to combine their elevated occupations with a sense of social humility and political rectitude, acting as 'cultured labourers'. According to Maoist expectations, the large majority of this new breed of college students were to hail from 'real' worker-peasant families.

How successful were these reforms in changing the social composition of university students in the period from 1970 to 1976? It is difficult to assess their impact with any precision because statistics on the early and mid-1970s are sparse and, as we shall see, certain groups had a vested interest in obfuscating the issue at the time. But certain patterns emerge – indistinct but hardly unexpected. Maoist reforms had some redistributive effect but this was limited by a number of factors and was achieved at considerable social, political and economic cost. The basic parameters which reduced the scope of change stemmed from the failure of the Cultural Revolution to achieve a radical change in the balance of forces in society at large, and a radical transfer of power at all levels of the State apparatus, especially within the educational system. The power of middle-ranking and higher Party, government and army cadres remained relatively unimpaired and, even where changes were made and fresh blood introduced, the new cadres had a distressing tendency to emulate the predatory behaviour of their predecessors. The intelligentsia had their wings clipped during the Cultural Revolution and were unable to lay public claim to high social status. But their power – resting as it did on their possession of scarce skills and knowledge vital for the development programme – remained virtually intact, even if more implicit and more difficult than before to 'translate' into prestige and transmit to their offspring. Thus the social 'push' for privilege on the part of these new strata, embedded in the structure of the new socialist system, remained largely unimpaired. The new system of educational recruitment was, in theory at least, a barrier to both strata. In reality, they were able – to varying degrees – to manipulate or evade the new rules to facilitate the interests of their own families.

At the policy level, the reforms of the Cultural Revolution met considerable opposition within the Party and government institutions. Cadres in advanced economic sectors relied on the colleges for a steady supply of skilled and competent personnel and resented the disruptions caused by the Cultural Revolution; educationalists were concerned at the lowering of academic standards. This resistance was reflected among top Party leaders and the early and mid-1970s was a period of see-sawing struggle between Maoist leaders attempting to maintain the radical momentum of the Cultural Revolution and their opponents who favoured a total or partial restoration of the status quo *ante*. Even when the policy pronouncements from Peking remained radical, moreover, the opposition made its presence felt in more subtle ways at the lower levels of policy implementation – in schools, colleges and local education bureaux.

This combination of social pressures and policy preferences operated to distort or circumvent the new enrolment criteria and limit their redistributive effect. There was a kind of conspiracy of ambiguity as interested parties either manipulated or winked at the manipulation of ideological (notably 'class') categories.

Ironically, the Maoist innovation of requiring practical work experience for all middle-school graduates gave considerable leeway to those students, parents and educationalists who wished to downplay class criteria in recruiting college students. Middle-school students with 2 years experience in industry or agriculture could thereby be redefined as 'workers' or 'peasants', categories which could override their previous class origins. Thus, for example, graduates of urban middle schools from diverse class origins who had spent 2 years working in a rural production team could be entered on college rolls as part of the 'peasant' intake, at the expense of more socially underprivileged children from 'real' peasant families. Another cosmetic

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device was to add the honorific – and often meaningless – prefix 'revolutionary' to dubious categories, thus transforming parents who were ordinary (and not-so-ordinary) 'cadres' and 'intellectuals' into 'revolutionary cadres' and 'revolutionary intellectuals'. Alternatively, they could lay claim to the 'class' status of 'intellectual youth', a ragbag category used in the 1960s and 1970s to denote educated urban youth who had been sent to the countryside to work after graduation. In many colleges, this stratum received priority in enrolments at the expense of their home-grown peasant workmates – this amorphous social category could again be used to obscure the real social origins of young people.

The new admission procedures also benefited cadres at all levels, both within the State machine and in basic-level units. Since the process of selection was now highly decentralized and politicized, cadres were able to use their power to get their own children 'recommended by the masses' either directly within their own units or through connections with cadres in relevant positions of authority elsewhere. Such youth were recruited as offspring of 'revolutionary cadres' or included under the 'worker-peasant' rubric. It is little wonder that the available data on the class origin of college students in the 1970s are confusing and show considerable variation across institutions. Take the set of 'statistics' from three universities, shown in Table 3.

Several tentative conclusions can be drawn from these (and other) statistics and from qualitative evidence from this period. First, it seems likely that the percentage of 'real' worker-peasant youth in colleges did expand to some extent in the early 1970s, even allowing for the fudging of statistical categories. While the offspring of urban worker families seem to have improved their access across the board, maintaining betwen 30 and 40% of places, the fortunes of peasants seem to have varied widely. Certain institutions seem to have made a special effort to recruit peasants, notably Peking University (40%) and Qinghua University (36% in 1974). Pepper reports, for example, that about half the students in one foreign language department at Shanghai's Fudan University in the mid-1970s, were 'peasants'.[30] Another informant reported a 'peasant' proportion as high as 60% in his foreign language faculty in Peking. The real problem is assessing how many in these

Table 3. *Class origins of college students*

| Class origins | Pre-Cultural Revolution (%) | 1973 (%) | 1974 (%) |
|---|---|---|---|
| **Peking University 1973–1974** | | | |
| Workers | | 40–45 | 40 |
| Peasants | 70 | 40–45 | 40 |
| PLA | | – | 10 |
| Revolutionary cadres and intellectuals | 'A great number' | 10+ | – |
| Exploiting classes | 10–20 | 1–2 | – |
| **Northwestern University 1973** | | | |
| Workers | | | *ca* 42 |
| Peasants | | | *ca* 35 |
| Revolutionary cadres and revolutionary intellectuals | | | *ca* 23 |
| **Wuhan University 1970–1971** | | | |
| Workers | 35.8 | | |
| Peasants | 4.6 | | |
| PLA | 5.7 | | |
| Intellectual youth | 33.9 | | |
| Others (including children of cadres) | 20 | | |

categories were from 'real' working-peasant families. Some of them were probably urban 'intellectual youth' reclassified as peasants after their stint in the countryside – note that the figures for Peking and Northwestern Universities, both of which show a high ratio of 'peasant' enrolment, do not include 'intellectual youth' as a separate category. Many others were probably the children of rural cadres and thus could be classified as 'semi-' or 'quasi peasants' since basic-level cadres in the countryside (notably at the production brigade and team levels) were still supposed to spend a large section of their time in agricultural work. If we are looking for the children of ordinary peasants, however, perhaps the figures from Wuhan University are more representative. Even if we assume that all the PLA students were of peasant origin, peasant representation was still only 10.3%. In general, therefore, it seems likely that, although both labouring classes benefited in relative terms from the new enrolment methods, urban workers gained more and only limited success was achieved in eliminating the urban bias in college recruitment. However, we should situate this improvement in the relative position of worker-peasant youth in the context of the drastic decline in college enrolments in the late 1960s and early 1970s – tertiary admissions did not regain their 1965 level until 1974, as Table 4 demonstrates.

Table 4. *Students in full-time higher education:* 1960–1975

| Year | Entrants | Enrolment |
|---|---|---|
| 1960–1961 | 320,000 | 965,000 |
| 1961–1962 | 109,000 | 819,000 |
| 1962–1963 | 107,000 | 820,000 |
| 1963–1964 | 133,000 | n.a. |
| 1964–1965 | 147,000 | n.a. |
| 1965–1966 | 164,000 | 695,000 |
| 1966–1967 | None? | n.a. |
| 1967–1968 | None? | n.a. |
| 1968–1969 | None? | n.a. |
| 1969–1970 | None? | n.a. |
| 1970–1971 | 20,000 | n.a. |
| 1971–1972 | n.a. | n.a. |
| 1972–1973 | n.a. | 200,000 |
| 1973–1974 | 153,000 | 324,000 |
| 1974–1975 | 167,000 | 440,000 |

Sources: Marianne Bastid-Bruguière, 'Higher education in the PRC', in *Science and Technology in the PRC* (Paris: OECD, 1977), p. 126; 'Meticulously and properly carry out this year's enrolment work for institutions of higher education', *People's Daily*, editorial (17 May 1979).

Second, it seems likely that young people from 'bad' class origins (or from families tainted by political labels such as 'counter-revolutionary' or 'rightist') were severely disadvantaged during this period, finding it almost impossible to enter universities. Clearly the new rules operated against them since few people at the grassroots level considered them politically worthy to enter colleges and were willing to take the political risks which sponsoring would have entailed – one could always be vulnerable to the charge of 'collaborating with class enemies'. Third, the children of the urban intelligentsia found college entrance more difficult. Examinations had been their trump card and the new 'recommendation system' thus removed their special advantage. As we have seen, however, there were still ways of getting in, either under their own class colours, as children of 'revolutionary intellectuals' or as part of the amorphous category of 'intellectual youth' or even as reclassified 'workers and peasants'. They still gained access disproportionate to their numbers, but lost ground to other urban strata, notably skilled workers and cadres. Fourth, the children of cadres probably improved their position for the reasons outlined above. Unlike the situation before the Cultural Revolution, however, the recommendation system gave more opportunities for basic-level cadres in factories and farms to gain places for their children as opposed to relatively senior cadres in the State machine. Fifth, aggregating across classes and strata, it seems that the Cultural Revolution had little success in redistributing college places away from cities in favour of the countryside. 'Intellectual youth' were all former urbanites, the three overrepresented groups (cadres, intellectuals and workers) were all urban. To the extent that people in the countryside did benefit, it tended to be the families of basic-level cadres.

In sum, the reforms of the Cultural Revolution had some limited redistributive impact but less than intended and this was more significant between urban strata than between city and countryside. This limited success in realizing the principle of redistributive egalitarianism inherent in the class line, however, was obliterated by the swinging changes in educational policy introduced after the death of Mao and the removal of the 'radical' Shanghai group. Educational theory and practice swung back to the meritocratic precedents of the mid-1950s and 1960s: strict academic standards were reinstated and many of the hierarchical aspects of the pre-Cultural Revolution educational system were resurrected, notably stratification

between middle schools (through the system of 'key-point' schools) and intra-school streaming. Official ideology has now been amended to reject explicitly the principle of class-based redistribution in favour of recruitment based on 'selecting the best'.[32] The class line has been repudiated as unfair and historically inappropriate. The 'bourgeois' taint of the intelligentsia has been removed by including them, along with State cadres, as officially part of the 'working class'. Most of the families of former 'enemy' classes have been similarly reclassified. Basic conflicts of interest between strata are thus defined away. Indeed, since 'the only difference between intellectuals, workers and peasants is their division of labour – they are all workers' – then 'the enrolling of the children of intellectuals likewise embodies the Party's class line'.[33] Unsurprisingly, such ideological gymnastics were accompanied by statistics on the percentages of 'working-class' children in colleges in the late 1970s which read like the results of Egyptian presidential 'elections': for example, 97.4% of national enrolments in 1977 were held to be 'working-class' students. The figures were 94% in the Northeastern province of Heilongjiang (Heilunchiang) and 97.5% in the central province of Hubei (Hupeh). In some individual instances, it was even higher: for example, 99% in the Chinese University of Science and Technology in Hofei and 99.4% at Jiaotong University in Shanghai.[34] Most of the aggregate statistics are not broken down into more precise figures but when they are, the class proportions seem close to the early 1960s. In Heilongjiang, for instance, only 59% of new enrolments were worker-peasant while at the prestigious Peking University, the breakdown for the new 1979 intake was as follows: 34% worker-peasant, 39% cadres and armymen, and 11% intelligentsia.[35] Like the early 1960s, this fragmentary data suggests a pattern of underrepresentation for the labouring classes, particularly at the better institutions, and heavy overrepresentation for the two dominant urban strata, cadres and intellectuals (the latter constituting only about 2% of the general population). If more precise statistics were available, they would probably also demonstrate a continued heavy urban bias in college recruitment. On the other hand, though the relative positions of workers and peasants may have deteriorated to some extent, this is mitigated by improvements in their *absolute* position resulting from an expansion in enrolments – total college enrolment increased from 440,000 in 1974–1975 to 850,000 in 1978.

## 5. CONCLUSION

It is hard to evaluate the relative success of the CCP's use of education as a redistributive mechanism without resort to precise comparative statistics – this would require a paper in itself. One can argue, however, that CCP policies have been successful in raising – in both relative and absolute terms – the level of social opportunity available to the labouring classes, notably the skilled urban working class. In the 1960s and 1970s, moreover, the class line imposed significant restrictions on the upward mobility of the offspring of the pre-revolutionary enemy classes. Given the large amount of political furore over the issue in the late 1950s and the late 1960s, however, it seems that the actual impact of redistributive policies has fallen short of leadership intentions. The impact of Cultural Revolution reforms was particularly unimpressive since it combined only a limited improvement in the relative access of worker-peasant youth with a dramatic decline in overall opportunities through reduced enrolments.

Clearly, educational policy-makers have not been working in a vacuum but have been wrestling with intractable problems and operating under powerful constraints. The attempt to implement the class line in college recruitment has encountered *ideological* problems since it represents only one principle of equality, fairness or justice. It is hard to imagine a theory and practice of revolutionary socialism which did not embody the principle of greater opportunity for the labouring classes and all socialist governments have attempted in various ways to fulfil this basic egalitarian commitment. But the other side of the coin of revolutionary egalitarianism is a principle of negative discrimination. The plea made during the Hundred Flowers and the Cultural Revolution that the offspring of pre-revolutionary middle and upper classes should not suffer for the sins of their parents but should stand equal before a meritocratic principle of equality represents an equally cogent and competing principle of allocative justice. This position has even greater force when it is applied to the classes and strata of post-revolutionary society – no longer 'landlords' or 'capitalists' but 'intelligentsia' and 'state cadres'. Such ideological tensions are by no means confined to the Chinese case – they can be seen clearly, for example, in the debates between sociologists in the Soviet Union, between the 'redistributive' position of Shubkin and the 'meritocratic' position of Rutkevich.[36] These same issues have also been contested in

Poland and Hungary and seem to be a basic component of all major programmes of socialist transformation.[37]

At the *policy* level, there has clearly been an underlying tension in educational policy between the principles of redistribution and developmental efficiency. In periods when the class line and other modes of politicization affected educational policy (notably the Great Leap and the Cultural Revolution and its aftermath), (conventionally measured) academic standards were neglected and the quality of educational output declined. Conversely, in periods when academic criteria were dominant, notably between 1960–1963 and 1977–1980, the ratio of worker-peasant students dropped appreciably. This experience would suggest that, particularly in an environment of poverty and scarcity characteristic of early socialist industrialization these two policy goals are very difficult to reconcile and, if both are desired, policy ambiguity and fluctuation is unavoidable.

But educational policy-making is clearly more than a rational choice of alternatives to achieve given goals. Given the crucial importance of higher education as a path to power and prestige, it has been the focus of acute *political struggle between different social strata* which has been reflected in leadership struggle within the Party. The central conclusion which emerges from the last two decades is the ability of the two key strata – each firmly rooted in the structure of state socialist society – to gain disproportionate access to higher education – even in the face of radical challenge – and to use this access to reinforce their social pre-eminence and transmit it to their descendants. Education thus functions as a key mechanism of class formation.[38]

Thus the sweeping educational reforms of the post-Mao era, which – at the policy level – have been hailed widely as a return to 'educational sanity', can be seen as mechanisms for asserting the ideological and material dominance of emerging classes over the means of their own creation and reproduction – a pattern which has emerged in the state socialist countries of Eastern Europe and can be traced in other non-socialist Third-World countries (for example, in Sinclair's work on Ghana). The events of the late 1970s heralded the crystallization of two classes – each rooted in a specific set of functions in the State machine – with both overlapping and competing interests.

Given the revolutionary nature of Maoist definitions of socialist development, however, class formation in socialist society and the role of education in this process have not gone unchallenged. At the end of the 1970s, the official press contained reports of 'fierce struggle' over the socially regressive impact of the new directions in educational policy. It is quite possible that the political pendulum will swing once again in a radical redistributive direction and the class line will be resuscitated and legitimized. If this does not occur, it is difficult to see China avoiding a pattern of increasing stratification and inequality of opportunity comparable to that which developed in the socialist countries of Eastern Europe.

## NOTES

1. For example, see Chris Colclough, 'Formal education systems and poverty-focussed planning', *The Journal of Modern African Studies*, Vol. 15, No. 4 (1977), pp. 569–589; John Sinclair, 'Social mobility and the characteristics of students at the University of Ghana (Legon)', mimeo, University of Cape Coast, Population and Education Seminar Series (March 1976).

2. I am using David Lane's term 'state socialist' which includes those countries with a ruling Marxist–Leninist ideology and conventionally described as 'socialist', viz. the Soviet Union, China, Cuba or Vietnam, and excludes countries such as Tanzania.

3. For example, see David Lane, 'The impact of revolution: the case of selection of students for higher education in Soviet Russia, 1917–1928', *Sociology*, Vol. 7, No. 2 (May 1973); and *The End of Inequality?: Stratification under State Socialism* (Harmondsworth: Penguin, 1971), especially Chaps. 4 and 5; Frank Parkin, *Class Inequality and Political Order* (London: Paladin, 1971), especially Chap. 5; G. Z. F. Bereday, 'Class tensions in Soviet education', in G.Z.F. Bereday and J. Pennar (eds.), *The Politics of Soviet Education* (New York: Praeger, 1960), pp. 57–88; Mervyn Mathews, *Class and Society in Soviet Russia*, especially Chaps. 5, 9, 10 and 11.

4. For a general review of university policy in China, see Robert Taylor, *Education and University Enrolment Policies in China*, 1949–1971, Contemporary China Papers, No. 6 (Canberra: Australian National University, 1973).

5. Ch'ien-Chün-jui (Qian Chunrui), 'General policy of present educational construction' (May 1950), translated in J. N. Hawkins, *Educational Theory in the People's Republic of China: The Report of Ch'ien Chün-jui* (Hawaii: 1971), p. 72.

6. The meaning of the term 'cadre' (*ganbu*) is ambiguous, but, for the purposes of this paper, I shall use it to refer to people in positions of political and administrative authority.

7. For a general discussion of 'class' analysis in China, see Gordon White, *The Politics of Class and Class Origin: The Case of the Cultural Revolution* (Canberra: Australian National University, 1976).

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9. Tseng Chao-lun, 'Higher education in New China' (June 1953) translated in Stewart Fraser (ed.), *Chinese Communist Education* (New York: Wiley, 1965), pp. 194–195. For the official regulations on the scholarship system, see 'Bulletin concerning the readjustment of people's scholarships for the nation's college and middle-school students', *People's Daily* (11 July 1952).

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10. For the 1953 regulations, see *Guangming Ribao* (Glorious Daily) (25 July 1953); for 1954, *People's Daily* (25 May 1954); for 1955 *People's Daily* (9 June 1955); and for 1956, *Glorious Daily* (7 April 1956).

11. The regular (i.e. State-run) educational system up to the Cultural Revolution consisted of 6 years of primary school, 3 years each of junior- and senior-middle school and colleges of various types with courses of 2 years and upwards.

12. Robert Taylor, *op. cit.*, pp. 15, 31.

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22. 'This year's worker-peasant college students encourage new students to study labour when they enter school', *Glorious Daily* (20 September 1958).

23. 'Open wide the university's doors to workers and peasants', *Wen Hui Bao* (Shanghai: 27 July 1958).

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# Meeting Basic Needs: An Overview

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**Summary.** – This paper summarizes some of the main issues related to the World Bank's basic-needs oriented lending programme. In particular, based on country experience it discusses the lessons learned with regard to sectoral policies and programming for their basic needs and their implications for future lending.

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## 1. MAIN LESSONS

In the programme of the World Bank for reducing absolute poverty, part of the effort has to do with what is commonly called meeting basic needs. A Bank-wide programme was launched in early 1978 to study the implications for the work of the Bank of accepting the meeting of basic needs within a relatively short period as a basic objective of national development efforts. This work programme covered a number of studies in the following areas:

(1) general studies to explore the concept of basic needs, its measurement, and its relevance for development strategies;
(2) country and cross-country studies to determine the dimensions of basic needs as yet unmet in individual countries and to review a range of policy interventions to improve the situation; and
(3) sector studies to analyse the implications of the objective of meeting basic needs in key sectors, such as nutrition, education, health, shelter, and water supply and sanitation, and to arrive at an understanding of the sequencing, linkages and complementarities among various sectors.

These studies were discussed extensively at the staff level and some were reviewed by senior management. The basic-needs work programme also benefited from a number of other studies undertaken in the Bank. These include the background papers prepared for the World Development Report[1] and a number of research projects carried out by the Bank staff. This paper is a summary of the main findings of the studies that have been undertaken.

The conceptual work makes it clear that the pursuit of basic needs is not a distinct development strategy in itself: it can only be regarded as a principal objective of development that can be, and has been, achieved through a variety of development strategies. The distinct emphasis that the basic-needs objective brings to a development strategy is a heightened concern for the achievement of the ultimate goals of the whole population with respect to consumption, particularly in education and health. In the discussion of policies aimed at the alleviation of poverty, a good deal of attention has generally been paid to the structure and beneficiaries of production and income; similar attention has not been devoted to a study of the needs for and patterns of consumption. The analysis of goals with respect to consumption – especially in education and health – sharpens the focus on the supply side, particularly on those public services whose expansion and distribution is crucial if the basic needs of the vast majority of the population are to be met. In other words, explicitly adopting the meeting of basic needs as an important objective of development draws attention to the ultimate goals of the society and to the ways in which policies with respect to production, investment and incomes are geared to meeting these goals in a cost-effective fashion and according to a specific schedule. This does not mean that the concept of basic needs is primarily a welfare concept. Indeed,

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improved education and health of the society often make a significant contribution to increased productivity.

It should be recognized, at the same time, that such terms as 'basic-needs strategies', 'basic-needs sectors', and 'basic-needs projects' are misnomers; they confuse an ultimate goal with intermediate means. Many different activities can contribute to the meeting of basic needs and the reduction of absolute poverty, from the building of infrastructure to the construction of a health dispensary. The indirect effect of policy actions may be just as important as the direct effect. A careful distinction must be made in this field between ends and means if confusion at a conceptual level is to be avoided.

The only way that absolute poverty can be eliminated on a permanent and sustainable basis is to increase the productivity of the poor. But this concern with the productivity of the poor needs to be supplemented for at least four reasons.

First, education and health are required, besides machines and land and credit, to contribute to a higher level of productivity. Most poor people have limited access to such public services as education, health care, and water supplies which they need if they are to break out of the vicious circle of low productivity and poverty.

Second, many poor people have no physical assets – neither a small farm nor a small industry. They are landless or urban poor. The only 'asset' they possess is their own two hands and their willingness to work. In such a situation, the development of human resources through education and health programmes is essential to increase their productivity.

Third, it is not enough to enable the poor to earn a reasonable income. They also need goods and services on which to spend it. Markets do not always supply wage goods, particularly public services. Expansion and redistribution of public services become essential if basic needs are to be met.

Finally, it may take a long time to increase the productivity of the absolute poor to a level where they can afford at least the minimum bundle of basic needs for a productive life. In the interim period, some income groups – particularly the bottom 10–20% – may need short-term subsidy programmes.

The country studies carried out under the Bank-wide work programme on basic needs in Sri Lanka, Brazil, Indonesia, Egypt, Mali, The Gambia and Somalia have been generally useful in highlighting the dimensions of unmet basic needs in various countries and, thereby, in raising the consciousness of national policy-makers. Considerable new factual material was assembled. The countries studied were not selected according to any particular criterion; the choice was generally made on the basis of the receptivity of a country, the availability of data, or the existence of some interesting experience of the country in meeting basic needs. It is not surprising, therefore, that no country typology can be built on the basis of this limited range of studies, and there are not many conclusions that are generally applicable. Most of the interest of these country studies lies in the special insights they provide into the problem of poverty in each country. Certain themes run through most country studies, however, and they are worth summarizing.

One of the most important questions raised by these country studies is whether there is a trade-off between accelerated economic growth and the achievement of objectives in meeting basic needs. Since advancing the timetable for meeting the basic needs of a society is likely to increase aggregate consumption, there is a *prima facie* presumption that saving, investment, and hence production will suffer. The real question, however, often is how short-term such a trade-off may turn out to be and what optimum development strategies can be chosen to minimize this trade-off because of the increasing knowledge of the many linkages between programmes for the alleviation of poverty and increased productivity. In the long run, better education, nutrition and health for the population are demonstrated to have a beneficial effect in reducing fertility, increasing the productivity of labour, enhancing the capacity of the individual for change, and creating a political environment conducive to stable development. An interesting conclusion of these studies is that the more pressing basic needs can be met even at fairly low levels of *per capita* income without sacrificing growth. The life expectancy of 69 years in Sri Lanka, for example, was achieved at a *per capita* income of $200 in 1977, combined with a *per capita* growth record of 2.0%/year between 1960 and 1977, whereas the average was only 1.1% in six other South Asian countries. An overall conclusion appears to be that if objectives in income distribution and meeting basic needs are pursued rationally, economic growth need not necessarily be sacrificed. Many instances are to be found in the country studies in which even the presumed short-run trade-off between economic growth and poverty-alleviation programmes can be avoided because there is at present considerable waste of resources in sectors that could

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supply basic needs directly, and more efficient reallocation is therefore possible. Greater availability of external assistance can also help cushion a society from the effects of a painful short-term trade-off.

Another general question raised by the country studies is that of the political system within which basic-needs objectives can be successfully realized. It is readily agreed among analysts that reallocation of resources towards goals of alleviation of poverty and the meeting of basic needs often requires considerable structural changes in the political and economic balance of power within these societies. But these structural changes have been engineered in a wide variety of political systems, though at varying speeds: from market-oriented economies such as those of South Korea and Taiwan, to mixed economies such as that of Sri Lanka, to centrally-planned economies such as those of China and Cuba, to decentralized socialist economies such as that of Yugoslavia. There is no unique route that can be prescribed. What is often common to these widely divergent country experiences is a fairly equitable distribution of physical assets, particularly land, and a decentralization of administration and decision-making to the local level, with adequate central support. Also, the role of the household sector, particularly that of women, is more prominently recognized within these political and economic systems in which a successful effort to meet basic needs has been launched.

These studies also demonstrate that more than global targets are needed if basic needs are to be met. In many conferences of the United Nations in recent years, an attempt has been made to set time-specific, global targets in the fields of education, health, water supply, nutrition and housing. The attempt has certainly heightened the awareness of the international community and national development planners of the broad dimensions of the problem in each area and of its urgency. But as global targets, they have had little practical significance. Specific targets for meeting basic needs can be set and implemented only in country-specific contexts. The costs of reaching individual global targets are generally exaggerated, moreover, since each sector is analysed in isolation, a process that does not allow sectoral linkages to be taken fully into account. Furthermore, these global basic-needs targets often are not fitted into a consistent, overall development strategy for the developing countries, so their internal consistency is doubtful and their schedules are generally a matter of arbitrary choice.

The most successful part of the basic-needs work programme was the sector studies, which helped clarify a number of policy issues. The more important ones are summarized as follows:

(1) Considerable attention was given to linkages and complementarities among various sectors. It became clear that intervention in one sector, such as health, may often not be very effective unless there is a simultaneous intervention in other sectors, such as education and nutrition. A cost-effective package for meeting basic needs can be prepared only after a thorough analysis of such sectoral linkages and complementarities has been made. This applies both to increasing the effect on health and education and to reduction of costs. In the Sri Lanka study, for example, it is pointed out that good education was to some extent a substitute for the poor quality of water in Sri Lanka in that people were taught to treat or boil water in order to eliminate contamination.

(2) It also became clear that a thorough review of intra-sectoral policies is called for in almost all sectors. Often the real question is not how much education and health expenditure, but what kind of education and health and who really benefits from these expenditures. In each country and sectoral study, a number of intra-sectoral issues on which further policy work is planned have been identified.

(3) Some cross-sectoral analysis that threw additional light on the ordering of sectoral priorities was carried out. It was generally agreed that some form of education was essential to the meeting of other basic needs. It was difficult, in fact, to find any country experience in which a successful advance on basic needs was made without a significant investment in basic education.

(4) The sector studies also underlined the enormous difficulty of reaching the lowest 20% of the income group in a society. Most delivery systems simply do not reach these people because of the existing power structures or marketing imperfections or cost considerations. The case for subsidizing certain poverty groups in the transitional period was strengthened by these studies, though many of the prevailing techniques of subsidization were found to be inefficient and indiscriminate.

(5) All sector studies emphasized the need for providing adequate financing for operating costs, which often constituted two-thirds of the total costs of these sectors.

Some financing of operating costs is already being done by the Bank. Until recently, however, practice in this regard was rather restrictive, especially in education. The situation has now changed, and the Bank has generalized its approach by making eligible for financing any incremental costs that are required during the project period for the implementation of education and training projects.

There is at present a rather confused debate on the concept and terminology of basic needs in the international forums, which is based on many misunderstandings, such as fears about reduced levels of aid, increased intervention in the domestic policies of developing countries, denial of modernization and industrialization, and global welfarism.[2] The term 'basic needs' has fast become an endangered code word. It is important, therefore, to keep focusing on the ultimate objective of elimination of absolute poverty which requires both acceleration in economic growth and redesign of public services so that the basic needs of the entire population can be met at an early date.

## 2. SECTORAL POLICIES FOR MEETING BASIC NEEDS

Although the content of the bundle of goods and services that satisfy basic needs varies from one country to another, there is a common core that includes nutrition, education, health, water, and sanitation and shelter. The Bank's work programme on poverty alleviation and basic needs included policy papers in each of these five sectors.[3]

It is not necessary to repeat here the analysis of the issues that are dealt with in the sector papers, but there are a number of issues that are common to the five sectors and there are some conclusions that can be reached only when the problem of poverty is examined from a multi-sectoral perspective.

### (a) *Shortfalls in meeting basic needs: a global perspective*

Developing countries have made some progress in meeting the basic needs of their population. During the last two decades, there was a slight increase in the average amount of food available *per capita*, from 208 kg in 1961 to 218 kg in 1976. The total number of children enrolled in schools increased from 142 million in 1960 to 315 million in 1975. There was some increase in the supply of water and sewerage and there was a slight increase in the stock of housing available to the poor.

These improvements have had some effects on the quality of life. Life expectancy at birth and level of literacy are two surrogate indexes for human welfare and both show that some progress has been made in the developing countries over the last two decades. In all developing countries, there has been a 15% improvement in life expectancy at birth; it increased from 47 years in 1960 to 54 years in 1977. The rate of adult literacy increased from 39 to 51% over the 1960–1975 period.

Despite these improvements, the life expectancy gap between the developed and the developing countries has narrowed only slightly: children born in the developed countries in 1977 could expect to live 20 years longer than those born in developing countries. Within developing countries a significant gap persists between the poor and the middle-income countries in both life expectancy as well as rate of literacy. The experience of Sri Lanka, however, shows that these gaps need not be so wide, even at low levels of *per capita* income.

As discussed later, education, access to basic health facilities, nutrition, the availability of water supply and sanitation facilities and adequate shelter all contribute to improvements in life expectancy. Despite improvements in the access to these goods and services, however, the situation in the developing countries remains disquieting. The number of people in developing countries who receive less than the minimum required amount of food energy as determined by the Food and Agriculture Organization increased from 368 million in the period 1969–1971 to 424 million in the period 1974–1976. The greatest number of the undernourished live in the poor countries of South Asia and sub-Saharan Africa and a significant proportion of them are children below the age of 15 years. There are about 850 million people in developing countries who have little or no access to school. Of these illiterates, 250 million are children and another 400 million are adult women. The rate of infant mortality in the developing countries is estimated to be 100 per thousand of the population, whereas it is only 25 in the developed nations. The gap in female life expectancy at birth is significantly larger than that of males. Only one-fifth of the population of the developing countries has access to

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adequate water supplies. In many poor nations, women spend as much as one-half of their work time in collecting water for consumption within households. Nearly two-fifths of the population of the developing countries remain without shelter.

Apart from indicating the magnitude of the problem faced by the developing countries, these estimates vividly suggest the especially disadvantaged status of women and children, who should receive special attention in efforts aimed at the alleviation of poverty.

These estimates of shortfalls, telling as they are, should not be interpreted to mean that global action programmes are needed in these areas or that global plans should be formulated to improve the well-being of women and children in the developing countries. While a global approach may seem attractive, since it offers a well-defined set of targets for planning purposes, it makes little practical sense. Planning for meeting basic needs is necessarily country-specific, and the main burden of decision-making falls on the countries themselves.

A look at sectoral development from the perspective of basic needs suggests a number of different types of interventions. These are discussed in the individual sector papers prepared by the Bank staff and will not be repeated here. Separate treatment of sectors for planning purposes, however – a tendency common in developing countries – makes for very costly solutions. Recognition of the linkages and complementarities among various sectoral interventions and of the fact that not all sectoral interventions need be undertaken simultaneously reduces the problem to somewhat more manageable proportions.

### (b) *Sectoral linkages and complementarities*

Much of the rural and urban development project work of the World Bank is undertaken on the assumption of strong linkages and complementarities among the outputs of various sectors. This means that the effectiveness of intervention in one sector often depends on interventions in other sectors. This point is supported by the findings in the individual sector studies. It was shown, for example, that the effectiveness of investment in sanitation facilities in improving health depends on education in personal hygiene. Similarly, curative medical services are likely to be ineffective if people are chronically malnourished, use germ-infested water, have no sanitation facilities and follow poor health practices in their personal lives. Provision of additional food to the malnourished may not produce a significant improvement in their conditions if these people do not change their nutrition practices. In extreme cases, action in one sector without corresponding action in others can be counterproductive, such as providing water supply without providing drainage attracts germs and insects that spread diseases.

Recognition of linkages and complementarities does not necessarily mean that progress has to be made simultaneously in all sectors that meet basic needs. In many situations, improvement in one sector may obviate the need for investment in some other sector. This means that on occasions certain outputs of these sectors can substitute for one another. Education, for example, can substitute for improvements in the quality of water – as it appears to have done in Sri Lanka – if people are taught to treat or boil water in order to eliminate contamination. Nutrition education and instruction in hygiene and sanitation can also substitute for some basic health services.

Recognition of linkage and complementarities and of possible substitutions among various goods and services important to the meeting of basic needs can substantially reduce the financial cost and administrative burden of poverty programmes. With respect to the proportion of GDP committed, for example, Sri Lanka and Mali have placed the same amount of emphasis on the development of social sectors but the considerably better performance of Sri Lanka can be attributed in part to strong public administration and to programmes in which linkages and complementarities among the outputs of different sectors are recognized.

### (c) *Priorities among sectors*

The manifold linkages between sectors raise an important question: must all the basic needs be provided for simultaneously or can a set of sensible sectoral priorities be established among basic needs? The question is important, since simultaneous improvement in all sectors would impose impossible administrative and financial costs in many countries.

A partial answer to this question was provided in the preceding section on linkages and complementarities: Whatever the resource situation, the interaction between sectors should be taken into account in any effective programme aimed at the meeting of basic needs. A cross-country analysis was also undertaken to provide a somewhat firmer answer to the question of sectoral priorities.

Cross-country statistical investigations provide more systematic evidence of the relation between life expectancy and various 'inputs'. The relation can be estimated in various ways. By using life expectancy as a measure of output, the effectiveness of various 'inputs' can be ranked on the basis of simple correlation, multiple correlation or deviations from income-adjusted expected values.

These various ways of testing the relationship between life expectancy and its possible determinants pose a number of statistical problems. Apart from them, there is the well-known difficulty of deciding how much reliance to place on cross-country evidence. To begin with, the effectiveness of various 'inputs' may depend on the stage of development of the country. Given the known linkages between sectors, moreover, the effectiveness of any one input (e.g. nutrition) may be dependent on the presence of other inputs (e.g. health services). There is also the usual problem of determining the direction of causality: is it that better education 'causes' longer life, that expectations of longer life 'cause' better education or that some hybrid factor (e.g. high income) causes both phenomena? Statistical techniques take care of some, but by no means all, of these problems. In any particular country, priorities need to be determined in the light of developments in that country. Nonetheless, cross-country statistical analysis points to some useful conclusions.

A significant conclusion is the strong relationship between education – as measured by literacy rates – and life expectancy. Taking the ratio of female to male education adds a bit more to the total explanation of the variance. Both *a priori* reasoning and some statistical tests suggest that the main direction of causality is likely to be from education to health and life expectancy. Nutrition and health care are also of some significance in explaining variations in life expectancy but are less significant than education. It should be noted that the data used here reflect averages for the whole population; with respect to nutrition, especially the linkage with life expectancy might have been stronger if evidence had been available for the distribution of calories among various segments of the population. Water supply, sanitation and shelter are less significant that the other variables in 'explaining' variations in life expectancy.

The cross-sectional country evidence suggests that the distribution of income is an additional variable of some significance in explaining variations in performance. The ratio of public consumption to GDP and the level of urbanization do not seem to be related to performance in meeting basic needs. Naturally, as stated earlier, all these conclusions need appropriate qualifications – they are based on inexact and perhaps inadequate measures of basic-needs inputs and outputs, and it is difficult to separate out cause and effect. Overall, however, one has to be impressed by the fact that education emerges as the top priority among various basic needs in all cross-country and cross-sectoral analyses that were carried out. While this reinforces the importance of expenditure on mass education in national development strategies, it should be re-emphasized that sectoral priorities are best determined at country level, with the objectives, preferences, past experience and stage of development of each society taken into account.

### (d) *Intra-sectoral reallocation of resources*

The sector studies and country studies suggest that the biggest problem is often not so much the unavailability of aggregate resources as of their inappropriate use. Many countries would not find it difficult to raise the extra resources needed to improve their performance in meeting basic needs. In some sectors, the additional resources could come from those already committed to the sector itself but being spent wastefully at present.

Rather than the commitment of inadequate resources, it is often misallocation that is responsible for indifferent performance in meeting basic needs. There are a number of instances of this from the country studies carried out by the Bank staff. For instance:

> (1) In one country, less than one-third of public health expenditure was being devoted to preventive medicine. Even more significant, this proportion had declined rapidly over the years; from 87% in 1949 to just over 30% in 1978. This means that in that country the bulk of the increase in the resources committed to health care went into curative medicine.
> (2) In another country, nearly a third of the education budget was being spent on university training.
> (3) In yet another case, 75% of the resources committed to the provision of water and sanitation were being claimed by large cities.

Not only are the resources in social sectors often applied to activities that contribute little to meeting basic needs, but frequently the disadvantaged and especially vulnerable groups have little access to them. Once again instances

can be cited to illustrate these cases. Thus:

(1) In one country, the urban population receives health subsidies five times as large as the rural population.
(2) In another country, food subsidies *per capita* are twice as high for the urban as for the rural population.
(3) In a third country, the implicit subsidy on providing primary education was four times as high in the urban as compared to the rural population.

It is clear, therefore, that emphasis on social expenditure has not always meant emphasis on the provision of basic needs. In the high priority education, nutrition, and health sectors, the primary emphasis should be on redirection of efforts within the sectors. It is vital to reallocate some resources from higher to lower levels of education, at least in those countries in which there has been an excessive flow of funds into secondary schools and colleges. In many countries, it is also necessary to divert resources from curative to preventive medicine, from urban to rural health care, from urban and/or large-scale water supply and sanitation projects to village and community water and sanitation programmes. It is imperative to make special efforts to get these reallocated resources to reach the poorer segments of the population. Female literacy and reduced infant mortality emerge as two of the important goals in the effort to meet the basic needs of the population.

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## 3. PROGRAMMING FOR MEETING BASIC NEEDS

It is exceedingly difficult to generalize from the seven country case studies included in the basic-needs work programme of the World Bank. The countries chosen (Brazil, Egypt, The Gambia, Indonesia, Mali, Somalia and Sri Lanka) represent a heterogeneous set. In 1977 they ranged in population from just over half a million (The Gambia) to 134 million in Indonesia; in area, from 0.01 million km$^2$ (The Gambia) to 8.5 million (Brazil); in proportion of the population that lives in the rural areas, from 83% (Mali) to 39% (Brazil); in income growth rate during the past 15 years or so, from −0.4% per head per annum (Somalia) to 4.9% per annum (Brazil); in income distribution, 19% of total income goes to the bottom 40% of the population in Sri Lanka compared with 9% in Brazil. Political systems also vary from a variety of mixed but socialist leaning systems (Sri Lanka, Somalia) to mixed but capitalist leaning (Brazil). In addition, there are great differences in geography, natural resources, culture and history. But the country case studies do reveal some common problems in implementing programmes, policies and projects aimed at meeting basic needs.

### (a) *Growth vs basic needs*[4]

Higher income *per capita* should mean greater national expenditure on goods and services that help to meet basic needs. Such a relation is suggested by a cross-country analysis of the variance in life expectancy. For a group of 86 developing countries, 52% of the variance is related to differences in *per capita* income. But this relationship does not necessarily suggest causality: on the basis of statistical relationships, it is difficult to tell whether longer life expectancy is the result of higher income or whether the causality runs in the opposite direction.

Nevertheless, the issue of growth vs basic needs must be analysed with some care. The cross-country analysis referred to above suggests a weak but positive relation between the change in *per capita* income and the change in life expectancy over the 1960–1973 period. Although the relationship is weak, it indicates that good performance in meeting basic needs does not result in lower rates of growth. It is difficult to say, however, whether good performance in this respect is a result of, or a cause of, the level of income and the change in it. In order to circumvent this question of causality problem, growth in output in developing countries between 1960 and 1973 was related to the level of life expectancy in 1960, the beginning of the period. In this case, a significant and positive association was found after the influence of other factors that affect growth, such as investment and imports had been taken into account.

There are some obvious reasons why meeting the basic needs of the population should result in improving productivity and incomes. A better educated and healthier labour force is generally found to be more productive. There is now a large body of empirical evidence that supports this *a priori* reasoning.[5] Many case studies demonstrate that basic education (as measured by literacy) is an important determinant of both labour productivity and growth of manufacturing. Improving the health status of the population produces the same kind of impact

on labour productivity.

The distribution of income among population varies between countries and changes over time. This is one reason why the link between basic-needs performance on the one hand and improvement in productivity and income on the other does not always show up clearly in cross-country comparisons. One would expect the income of the poorest 40% of the population, rather than average *per capita* income, to be critical in determining basic-needs performance. While data are inadequate for a full testing of the significance of income distribution, statistical evidence clearly shows that those countries in which life expectancy is much higher than that suggested by their levels of *per capita* income tend to have more egalitarian income distribution. And countries that do worse than might be predicted tend to have marked inequality in income distribution. The countries that show better than predicted performance on basic needs include the People's Republic of China, Cuba, North Korea, Jamaica, South Korea, Sri Lanka and Taiwan. All of them have relatively poor income distribution.

Discussion of country experience in the context of the Bank staff review of the seven case studies raised the same issue: whether countries at low levels of income can afford to concentrate efforts on meeting basic needs. This issue is of particular relevance for the poor countries of sub-Saharan Africa. It is certainly true that, without an adequate resource base, absolute poverty and unmet basic needs will continue in these countries. The studies of these three African countries illustrate, however, that even at low resource levels substantial economies can be achieved through a better allocation of their resources. At the same time, however, considerable emphasis has to be given to increasing output. The real challenge is to choose a growth strategy which combines increases in productivity with alleviation of absolute poverty. A total focus on increasing the GNP growth rate, without explicit attention to the problem of absolute poverty and basic needs, would miss important opportunities to make immediate benefits available to the poor. In addition, undue consideration on 'growth now, poverty alleviation later' could build up an entrenched middle class favoured by government services, and make a reallocation of resources at a later date just that much more difficult.

The possible trade-off between economic growth and basic-needs objectives was also addressed specifically in the Sri Lankan study.[6] The study casts doubt on the thesis that Sri Lanka's social programme resulted in a lower rate of growth. It seems clear that the cost of the social programmes became a real burden only in the 1970s, when the average GDP growth rate was lower than that in the 1960s. This lower growth rate was caused by development policies pursued by the government and a deterioration in the terms of trade, rather than by the financial burden of the social programmes.

It is difficult to tell, furthermore, exactly how much growth Sri Lanka gave up in devoting resources to social programmes, since it is impossible to know what the productivity of these alternative investments would have been. In any case, the situation of Sri Lanka with a *per capita* income in 1977 of only $160 but a life expectancy of 69 years, is truly remarkable. Life expectancies of this length are generally achieved only by countries in which *per capita* income is $1000 or more. The Sri Lankan experience illustrates further the considerable progress that low-income countries can make in meeting basic needs despite limited availability of resources. The growth record of Sri Lanka is not poor when it is compared to those of other South Asian countries. During the period 1960–1977, for example, Sri Lanka's *per capita* income grew at an annual rate of 2.0%/year, while the average for six other South Asian countries was 1.1%. [The six countries are: Afghanistan, Bangladesh, Burma, India, Nepal and Pakistan. See *World Development Report*, 1979, Appendix Table 1. The growth rate of 1.1% is a weighted average.]

There is also some evidence (e.g. from Sri Lanka) that meeting basic needs, particularly by increasing the education of women and absorbing women into the labour force, reduces the size of the family desired. Similarly, since mortality is heavily concentrated among children, and since parents tend to overcompensate against infant mortality, lower rates of infant mortality reduce the desired size of families and, after a time lag, lead to reduced fertility and slower population growth. In this way, good performance in meeting basic needs also contributes to a rise in the rate of growth of *per capita* income.

Three lessons can be drawn from these country studies. The first is that if objectives of distribution of income and the meeting of basic needs are pursued rationally, they need not cause any sacrifice of economic growth. The second is that the more pressing needs of the societies can be met even at low levels of national income. The third is that fulfilment of basic needs should contribute to a significant reduction in the rates of fertility.

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(b) *Activities of the household sector*

The activities of the household sector are particularly relevant to the meeting of basic needs. In developing countries, this sector produces a substantial amount of 'non-monetized' goods and services for its own use. While it may be responsible for as much as 40% of 'full' income in these countries, its share is even higher in production of goods and services that are important in meeting basic needs.

The country case studies indicate some problems that may be presented by the household sector in the fulfilment of the basic needs of the more disadvantaged groups in society, such as the childen below the age of five and women. In many situations, household activities are so organized as to discriminate against these groups. For example, women and children receive relatively low priority in the distribution of food within the household. In several African countries, women are required to perform tasks that are physically taxing. Some studies show that if the time spent in the household activities is added to the time spent as farm hands, the workday of women is about 20% longer than that of men.

Removing discrimination against women and children will, of course, help to meet their basic needs. In addition, women can perform a critical function in the production and use of goods that are important in meeting those needs. As discussed earlier, the effective use of these goods depends in large part on the active and educated participation of the consumer – with respect to nutrition practices, health and hygiene, for example. Here, women have a pivotal function in the household. Also, in their spending patterns, women are systematically oriented more toward basic needs than men. One of the conclusions of the work on basic needs, therefore, is that a successful approach depends heavily on the contribution of women, and that policies and interventions should be designed in such a way as to enhance their contribution.

The most obvious point of intervention is female education. Others include increasing the earning opportunities of women and particularly by women in the administrative and decision-making processes and, more generally, in the development process. Actively taking such an approach means challenging traditional areas of male supremacy. Although the effort is socially difficult to implement, it is often vital to the success of policies and programmes aimed at the meeting of basic needs.

(c) *Lowest income groups*

In some of the country and sector studies special difficulties in meeting the basic needs of the very poorest – say the bottom 20% of the population – or of ethnic minorities, or of people in distant regions were pointed out. These people are generally more difficult to reach. Strategies directed at improving the incomes of the poor – even if they are fairly successful – often fail to reach these groups. They also tend to be disadvantaged in respect to access to public services – e.g. education and health. Special efforts to reach the poorest are often thwarted by 'hijacking' by other special groups; this has happened, for example, to food subsidy programmes in a number of countries and also to special credit programmes. The needs and problems of the poorest present a special challenge: as the sector studies such as that concerning shelter indicate, not enough is known about ways of reaching this group on a sustained and economically viable basis.

In many instances, social and economic conditions of the poorest segments of the population present special problems. A large number ber of the nomads in sub-Saharan Africa are very poor. Providing them with basic education and health facilities presents difficult problems of logistics. Social discrimination and taboos make it difficult to reach some of the poorest sections of the population in South Asia. These obstacles must be overcome before the basic needs of these groups can be met. Country-specific work is underway in the Bank to identify the characteristics and special problems of the very poorest groups in society so as to learn more about how best they can be reached through its projects and programmes.

(d) *Financing basic-needs programmes*

Increased emphasis on the provision of basic needs raises a number of difficult questions of financing. First, operating costs are quite heavy in relation to capital costs. This means that any viable programme must allow for continuing financial support, rather than once-and-for-all-time commitment for capital costs. Second, the obvious solution to the problem of operating costs – levying charges to cover these costs – is in some cases both difficult to administer and undesirable because the social benefits of the projects often far exceed the private benefits to the individual consumer. This is clearly true,

for example, of vaccination programmes or programmes of health education of which the principal beneficiaries are the community-at-large rather than the particular individuals who are involved in the programme. In other areas, it may be difficult to charge for the services because they are provided communally. Third, because provision of universal access to goods and services important in the meeting of basic needs should be a major objective of development – especially in the provision of access for the very poor – any system of charges is likely to debar the very people for whom the programmes are most essential. The public sector would become overburdened with fiscal liability, however, unless some system of generating finance captures some of the benefits on a continuous basis.

Country case studies suggest the following possible approaches:

(1) In some instances, charges to cover operating costs are reasonable from the point of view of social and economic efficiency. In these, which include the costs of shelter, water and sanitation, some recurrent medical costs, and perhaps the cost of higher education, charges to users probably offer the best solution. But charges either should not be levied upon the poorest consumers or should be levied upon them at much reduced rates. The poor can be cross-subsidized by richer consumers or from general government revenues.

(2) For programmes in which charges to users are not desirable or feasible as a system of finance, planning for the financing of operating costs should be an intrinsic part of initiation of the projects. If the local community takes on, as it often does, responsibility for some share of the capital costs, it may also be prepared and be able to make a similar commitment for operating costs. The same holds true for aid donors.

(3) Government financing is likely to be required for subsidy programmes – e.g. for nutrition, and for other services for poorer consumers. To limit the financial responsibility of the government while enabling the poorer consumers to participate in the programmes requires careful direction of the subsidies toward those most in need. Such targetting is very difficult to achieve for administrative and political reasons. It may be easier to direct some types of programmes rather than others – e.g. providing subsidies on food primarily consumed by the very poor.

### (e) *Political commitment*

In many countries, the biggest obstacle to good performance in meeting basic needs is not the absence of resources but political restraints on their use that are placed by entrenched interests. A highly skewed distribution of political power is obviously responsible for the failure to meet basic needs fully in several high-income countries. But in other relatively high-income countries, such as Korea and Taiwan, an impressive advance has been made in providing people with their basic needs. There are many other examples of similar political systems that achieve quite different performances in meeting basic needs. In the more important instances of successful performance, history or initial conditions appeared to have been important.

Some countries have found it easier to overcome political obstacles to the meeting of basic needs by increasing the resources committed to social sectors and to the sectors that produce goods and services that meet basic needs. It is for political reasons that many countries – Egypt, Pakistan, even Sri Lanka until recently – adopted general food subsidy programmes rather than specific subsidies so as to distribute a certain share of the benefits to the poor. Without allowing leakages of resources to flow to groups other than the target groups, programmes such as these may not have been politically acceptable. But such a solution to political problems can be very expensive.

But political problems should not be allowed to constrain the effort needed to meet basic needs. Social and economic groups that see in these programmes a high economic cost to themselves should be persuaded that procrastination will bring even greater penalties eventually. The financial bruden imposed by poverty alleviation programmes must always be weighed against the heavy social and political costs which can result from persistent poverty.

### (f) *Administrative management*

Successful programmes for meeting basic needs require different administrative approaches from those involved in more traditional capital-intensive and technology-intensive development work. Such programmes depend for their success on substantial involvement of, and response from, the public that they intend to reach. When the intended beneficiaries are poor and isolated, additional efforts are required if these programmes are to be successful. Two principal administrative structures

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can be built for this purpose: modified official bureaucratic systems that provide the goods and services important for meeting basic needs and organized groups of the intended beneficiaries themselves. The Sri Lankan food subsidy programme is an example of the former type of structure; the various village development programmes in South Korea illustrate the latter.

Administrative problems become more severe when a deliberate effort is made to supply these goods and services for only a short period. These problems arise in part because the production structure of the economy will not, in the short run, be appropriate to the new consumption structure. Consequently, prices of these goods are likely to rise, shortages are likely to emerge and some of the programmes may be rendered ineffective. It is generally necessary to make special arrangements to overcome these transitional problems, as is illustrated by the experience of some nutritional programmes.

## 4. ISSUES FOR THE WORLD BANK

### (a) *Sector priorities*

During the past 12 years, the Bank has shifted its sectoral priorities so that an increasing share of its lending is now committed to the sectors that contribute directly to the objective of alleviating poverty (Table 1); this trend is expected to continue during the 1980s. As suggested earlier, however, in the section on sectoral priorities, allocation within the sector is often more important for meeting the needs of the poor, and there is considerable additional scope for adjustment of lending within sectors. It is estimated that in some sectors only a small share of lending within each social sector is devoted to the alleviation of absolute poverty. For example, only 14% of the benefits of water and sanitation are believed to go to those in absolute poverty. The share of basic education in total lending by the Bank in the education sector is estimated to be 25%. These are only rough estimates, but it seems clear that there is some potential for shifting resources within the main sectors that supply basic needs. Therefore, even without increasing the proportion of its lending that goes to these sectors, the Bank can carefully evaluate intrasectoral allocations and their links with the objective of alleviating absolute poverty, both in the development effort of a country and in its own lending programme.

### (b) *Lending procedures*

Greater emphasis on the objectives of alleviating poverty and meeting basic needs has some

Table 1. *IBRD/IDA lending by sectors (in* 1980 *constant dollars)* *

| Sectors of lending | FY1970 | | FY1980 (preliminary) | | Average annual growth FY1979–1980 |
|---|---|---|---|---|---|
| | $ million | % | $ million | % | % |
| Infrastructure† | 3784 | 58.3 | 4090 | 37.2 | 0.8 |
| Sectors directly linked to increasing the productivity of the poor | | | | | |
| Production sectors – 'new style projects'‡ | 166 | 2.6 | 2053 | 18.7 | 28.6 |
| 'Basic-needs programmes'§ | 340 | 5.2 | 1299 | 11.8 | 14.4 |
| Subtotal | 506 | 7.8 | 3352 | 30.5 | 20.8 |
| Other production sectors‖ | 2197 | 33.9 | 3558 | 32.3 | 4.9 |
| Total | 6487 | 100.0 | 11,000 | 100.0 | 5.4 |

* There is some overlap between various categories. Also, all lending has varying degrees of impact on poverty, directly or indirectly. The table is only illustrative to bring out the major shift in sectoral emphasis over time.

† Includes communications, energy, power, transportation and tourism.

‡ Includes rural development and small-scale industry projects where over 51% of the total benefit is directed to poverty target groups.

§ Includes education, population, health, sites and services, and water supply.

‖ Includes agriculture (excluding rural development), DFCs (development finance companies), industry, technical assistance and non-project lending.

important implications for the lending procedures of the Bank, particularly for operating costs and in sectoral lending.

(i) *Operating costs*

It is characteristic of many projects and programmes which are aimed at meeting basic needs that operating costs are high in relation to capital costs. Some financing of incremental operating costs is already being done by the Bank. In agricultural extension projects, the Bank includes the salaries of extension workers in the costs of the projects. Practices have varied, however, among sectors; in education, for example, this type of financing has been limited.

The Bank has recently generalized this approach by making eligible for financing any incremental operating costs required for the implementation of education and training projects. Specifically, this includes financing of incremental costs of teachers' salaries and materials, which in many instances may be a more effective way of expanding or improving education than an exclusive preoccupation with buildings and equipment. The financing of such incremental operating costs by the Bank will not extend beyond the implementation period of the project. This implementation period is to include not only the time necessary for buildings, equipment, materials and teachers to be in place and ready to operate, but also a reasonable period of initial operation – 1 or 2 years, say – during which the additional educational facilities can achieve an efficient level of operation.

The additional operating costs of a project will always be carefully reviewed to ensure that they are justified and do not impose an unacceptable burden on the borrower. The Bank will satisfy itself that incremental operating costs that it finances during the project-implementation period can be financed subsequently by the government. Because the government must normally be expected to be in a position to finance such costs from its regular budget once the project has been completed, it will generally be desirable for the Bank to finance incremental operating costs on a declining basis, thus encouraging gradual increases rather than quantum jumps in the amounts that must be financed from local funds.

(ii) *Sectoral lending*

Sectoral lending has several implications for the Bank's approach and procedures. It requires a sector programme, not just a set of projects, that meets the objectives and criteria agreed upon between the donor and the recipient. More specifically, it also demands a satisfactory sector strategy and adequate sectoral institutions capable of managing sector planning etc. as well as project work.

To make this possible, it is imperative that the development of those institutions and policies that create a favourable environment for this type of lending be promoted. The Bank will therefore adopt an explicit polity of creating and developing institutions in education, health, water supply and the like that can in time be relied upon to make good use of sector loans. At the same time, the Bank will expand its sector lending in the appropriate sectors – education, nutrition, water supply and sanitation, and shelter – in those countries in which an adequate institutional base already exists.

## NOTES

1. The World Bank, *World Development Report* 1980 (Washington, D.C.: 1980).

2. For an elaboration of this argument see Mahbub ul Haq, 'An international perspective on basic needs', in *Poverty and Basic Needs* from *Finance and Development* (Washington, D.C.: World Bank, September 1980), pp. 31–34.

3. The sectoral papers include: *Shelter* (by Anthony Churchill, Poverty and Basic Needs Series, 1980); *Water Supply and Waste Disposal* (by John Kalbermatten *et. al.*, Poverty and Basic Needs Series, 1980); *Nutrition* (by Alan Berg, forthcoming); *Education Sector Policy Paper* (by Wadi Haddad, 1980); *Health Sector Policy* (by Fredrick Golladay, 1980).

4. For an elaboration of this argument see Norman Hicks, 'Is there a tradeoff between growth and basic needs?', in *Poverty and Basic Needs* from *Finance and Development* (Washington, D.C.: World Bank, September 1980), pp. 22–25.

5. See Shahid Javed Burki, 'Sectoral priorities for meeting basic needs', in *Poverty and Basic Needs* from *Finance and Development* (Washington, D.C.: World Bank, September 1980), pp. 13–17.

6. See Paul Isenman, 'Basic needs: the case of Sri Lanka', *World Development*, Vol. 8, No. 3 (March 1980), pp. 237–258.

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## APPENDIX

Table A1. *Indicators related to life expectancy in selected countries*

| | Life expectancy at birth (years) | | Infant mortality rate (aged 0–1) | | Child death-rate (aged 1–4) | |
|---|---|---|---|---|---|---|
| | 1960 | 1978 | 1960 | 1978 | 1960 | 1978 |
| Bangladesh | 40 | 40 | – | 139 | 29 | 23 |
| Ethiopia | 36 | 39 | 126 | – | 43 | 37 |
| Mali | 37 | 42 | 210 | – | 41 | 32 |
| Nepal | 36 | 43 | – | – | 35 | 23 |
| Somalia | 36 | 43 | – | – | 43 | 31 |
| Burma | 44 | 53 | – | – | 25 | 15 |
| India | 43 | 51 | – | – | 28 | 18 |
| Sri Lanka | 62 | 69 | 63 | – | 7 | 2 |
| Zaire | 40 | 46 | – | – | 37 | 27 |
| Pakistan | 44 | 52 | – | – | 27 | 17 |
| Tanzania | 42 | 51 | – | 185 | 32 | 20 |
| Afghanistan | 34 | 42 | – | 237 | 42 | 27 |
| Uganda | 44 | 53 | 160 | – | 30 | 17 |
| Sudan | 39 | 46 | – | – | 46 | 31 |
| Kenya | 47 | 53 | 126 | – | 25 | 14 |
| Indonesia | 41 | 47 | 125 | – | 31 | 20 |
| Egypt | 46 | 54 | – | 108 | 31 | 18 |
| Ghana | 40 | 48 | 141 | – | 36 | 23 |
| Thailand | 51 | 61 | – | 68 | 15 | 6 |
| Philippines | 51 | 60 | 98 | 65 | 16 | 7 |
| Nigeria | 39 | 48 | – | – | 38 | 24 |
| Morocco | 47 | 55 | – | – | 30 | 17 |
| Peru | 48 | 56 | – | – | 28 | 16 |
| Colombia | 53 | 62 | – | 98 | 17 | 9 |
| Korea | 54 | 63 | 62 | 37 | 13 | 5 |
| Turkey | 51 | 61 | – | 118 | 24 | 10 |
| Mexico | 58 | 65 | 78 | 60 | 14 | 6 |
| Brazil | 57 | 62 | 128 | 92 | 13 | 9 |
| Argentina | 65 | 71 | 55 | – | 6 | 3 |
| Yugoslavia | 62 | 69 | 88 | 34 | 4 | 2 |

Source: World Bank, *World Development Report*, 1980, Annex Table 21.

Table A2. *Education-related indicators for selected countries*

| | Number enrolled in primary school as percentage of age group | | | | | | Number enrolled in secondary school as percentage of age group | | Number enrolled in higher education as percentage of population (aged 20 24) | | Adult literacy rate (%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | Male | | Female | | | | | | | |
| | 1960 | 1970 | 1960 | 1977 | 1960 | 1977 | 1960 | 1977 | 1960 | 1977 | 1960 | 1978 |
| Bangladesh | 47 | 81 | 66 | 103 | 26 | 58 | 8 | 23 | 1 | 2 | 22 | 26 |
| Ethiopia | 7 | 26 | 11 | – | 3 | – | (.) | 8 | (.) | (.) | – | 10 |
| Mali | 10 | 28 | 14 | 36 | 6 | 20 | 1 | 7 | – | 1 | 3 | 10 |
| Nepal | 10 | 71 | 19 | 108 | 1 | 32 | 6 | 14 | 1 | 2 | 9 | 19 |
| Somalia | 9 | 44 | 13 | 57 | 5 | 32 | 1 | 4 | (.) | 1 | 2 | 60 |
| Burma | 56 | 80 | 61 | 83 | 52 | 78 | 10 | 22 | 1 | 2 | 60 | 67 |
| India | 61 | 80 | 80 | 95 | 40 | 64 | 20 | 28 | 3 | 6 | 28 | 36 |
| Sri Lanka | – | 86 | – | 89 | – | 82 | 27 | 47 | 1 | 1 | 75 | 78 |
| Zaire | 60 | 93 | 88 | 109 | 32 | 78 | 3 | 19 | (.) | 1 | 31 | 15 |
| Pakistan | 30 | 51 | 46 | 69 | 13 | 32 | 11 | 17 | 1 | 2 | 15 | 21 |
| Tanzania | 25 | 70 | 33 | 79 | 18 | 60 | 2 | 3 | – | (.) | 10 | 66 |
| Afghanistan | 9 | 20 | 15 | 33 | 2 | 6 | 1 | 7 | (.) | 1 | 8 | 12 |
| Uganda | 49 | 53 | 65 | 63 | 32 | 44 | 3 | 7 | (.) | 1 | 35 | – |
| Sudan | 25 | 41 | 35 | 47 | 14 | 34 | 3 | 13 | (.) | 1 | 13 | 20 |
| Kenya | 47 | 104 | 64 | 110 | 30 | 98 | 2 | 17 | (.) | 1 | 20 | 40 |
| Indonesia | 71 | 86 | 86 | 91 | 58 | 81 | 6 | 21 | 1 | 2 | 39 | 62 |
| Egypt | 6 | 72 | 80 | 87 | 52 | 56 | 16 | 46 | 5 | 14 | 26 | 44 |
| Ghana | 38 | 74 | 52 | 84 | 25 | 64 | 5 | 29 | (.) | 1 | 27 | 30 |
| Thailand | 83 | 83 | 88 | 86 | 79 | 79 | 13 | 27 | 2 | 5 | 68 | 84 |
| Philippines | 95 | 105 | 98 | 103 | 93 | 108 | 26 | 56 | 13 | 24 | 72 | 87 |
| Nigeria | 36 | – | 46 | – | 27 | – | 4 | – | (.) | 1 | 15 | – |
| Morocco | 47 | 68 | 67 | 86 | 27 | 50 | 5 | 17 | 1 | 4 | 14 | 28 |
| Peru | 83 | 110 | 95 | 115 | 71 | 106 | 15 | 52 | 4 | 16 | 61 | 72 |
| Colombia | 77 | 103 | 77 | 100 | 77 | 105 | 12 | 39 | 2 | 9 | 63 | 81 |
| Korea | 94 | 111 | 99 | 111 | 89 | 111 | 27 | 88 | 5 | 11 | 71 | 93 |
| Turkey | 75 | 98 | 90 | 106 | 58 | 90 | 14 | 43 | 3 | 8 | 38 | 60 |
| Mexico | 80 | 116 | 82 | 120 | 77 | 114 | 11 | 39 | 3 | 10 | 65 | 76 |
| Brazil | 95 | 90 | 97 | 89 | 93 | 90 | 11 | 24 | 2 | 12 | 61 | 76 |
| Argentina | 98 | 110 | 98 | 110 | 99 | 111 | 23 | 41 | 11 | 29 | 91 | 94 |
| Yugoslavia | 111 | 100 | 113 | 101 | 108 | 99 | 58 | 79 | 9 | 21 | 77 | 85 |

(.) = less than half the unit shown.
Source: World Bank, *World Development Report*, 1980, Annex Table 23.

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Table A3. *Health-related indicators in selected countries*

| | Population per | | | | Percentage of population with access to safe water, 1975 | Daily calorie supply *per capita* | |
|---|---|---|---|---|---|---|---|
| | Physician | | Nursing persons | | | | |
| | 1960 | 1977 | 1960 | 1977 | | Total, 1977 | As percentage of requirement, 1977 |
| Bangladesh | – | 9260 | – | 42,080 | 53 | 1812 | 78 |
| Ethiopia | 89,360 | 76,320 | – | 20,310 | 6 | 1754 | 75 |
| Mali | 38,640 | 24,100 | 4980 | 3080 | 9 | 2117 | 90 |
| Nepal | 72,000 | 35,210 | – | 51,220 | 9 | 2002 | 91 |
| Somalia | 36,570 | – | 6220 | – | 33 | 2033 | 88 |
| Burma | 9900 | 5120 | – | 5190 | 17 | 2286 | 106 |
| India | 5800 | 5620 | 9630 | 5680 | 33 | 2021 | 91 |
| Sri Lanka | 4500 | 6270 | 4150 | 2260 | 20 | 2126 | 96 |
| Zaire | 36,850 | 15,540 | 3440 | 1940 | 16 | 2271 | 104 |
| Pakistan | 11,000 | 3780 | – | 10,040 | 29 | 2281 | 99 |
| Tanzania | 21,020 | 15,450 | 10,440 | 2760 | 39 | 2063 | 89 |
| Afghanistan | 22,460 | 19,890 | 23,210 | 25,100 | 6 | 2695 | 110 |
| Uganda | 12,960 | 27,600 | 9420 | 4300 | 35 | 2110 | 91 |
| Sudan | 27,880 | 8700 | 3040 | 1340 | 46 | 2184 | 93 |
| Kenya | 10,560 | 11,950 | 2230 | 1120 | 17 | 2032 | 88 |
| Indonesia | 41,000 | 14,580 | – | 2820 | 12 | 2272 | 105 |
| Egypt | 2600 | 1070 | 2730 | 1150 | 66 | 2760 | 109 |
| Ghana | 12,160 | 9930 | 5430 | 840 | 35 | 1983 | 86 |
| Thailand | 7800 | 8170 | 4900 | 3540 | 22 | 1929 | 105 |
| Philippines | – | 2760 | – | 3060 | 39 | 2189 | 97 |
| Nigeria | 56,900 | 15,800 | 6020 | 4030 | – | 1951 | 83 |
| Moroco | 9400 | 10,140 | – | 1830 | 55 | 2534 | 105 |
| Peru | 2250 | 1560 | 2210 | 750 | 47 | 2274 | 97 |
| Colombia | 2400 | 1970 | 3740 | 1250 | 64 | 2364 | 102 |
| Korea | 3000 | 1960 | – | 510 | 62 | 2785 | 119 |
| Turkey | 3000 | 1770 | – | 1400 | 75 | 2907 | 115 |
| Mexico | 1700 | 1820 | – | 1400 | 62 | 2654 | 114 |
| Brazil | 3600 | 1700 | – | – | 77 | 2562 | 107 |
| Argentina | 660 | 530 | – | – | 66 | 3347 | 126 |
| Yugoslavia | 1620 | 760 | 1350 | 410 | – | 3445 | 136 |

Source: World Bank, *World Development Report*, 1980, Annex Table 22.

Table A4. *Demographic-related indicators in selected countries*

| | Crude birth-rate per thousand population | | Crude death-rate per thousand population | | Percentage change in | |
|---|---|---|---|---|---|---|
| | 1960 | 1978 | 1960 | 1978 | Crude birth-rate, 1960–1978 | Crude death-rate, 1960–1978 |
| Bangladesh | 51 | 46 | 25 | 18 | −9.8 | −28.0 |
| Ethiopia | 51 | 49 | 28 | 25 | −3.9 | −10.7 |
| Mali | 50 | 49 | 27 | 22 | −2.0 | −18.5 |
| Nepal | 46 | 45 | 29 | 21 | −2.2 | −27.6 |
| Somalia | 57 | 48 | 29 | 20 | −15.8 | −31.0 |
| Burma | 43 | 39 | 22 | 14 | −9.3 | −36.4 |
| India | 43 | 35 | 21 | 14 | −18.6 | −33.3 |
| Sri Lanka | 36 | 26 | 9 | 6 | −27.8 | −33.3 |
| Zaire | 48 | 46 | 24 | 19 | −4.2 | −20.8 |
| Pakistan | 48 | 45 | 23 | 15 | −6.3 | −34.8 |
| Tanzania | 47 | 48 | 22 | 16 | 2.1 | −27.3 |
| Afghanistan | 48 | 48 | 30 | 22 | 0.0 | −26.7 |
| Uganda | 45 | 45 | 21 | 14 | 0.0 | −33.3 |
| Sudan | 47 | 45 | 25 | 18 | −4.3 | −28.0 |
| Kenya | 51 | 51 | 19 | 14 | 0.0 | −26.3 |
| Indonesia | 47 | 37 | 23 | 17 | −21.3 | −26.1 |
| Egypt | 45 | 37 | 19 | 13 | −17.8 | −31.6 |
| Ghana | 49 | 48 | 24 | 17 | −2.0 | −29.2 |
| Thailand | 46 | 32 | 17 | 8 | −30.4 | −52.9 |
| Philippines | 45 | 35 | 15 | 9 | −22.2 | −40.0 |
| Nigeria | 52 | 50 | 25 | 18 | −3.8 | −28.0 |
| Morocco | 52 | 45 | 23 | 13 | −13.5 | −43.5 |
| Peru | 47 | 39 | 19 | 12 | −17.0 | −36.8 |
| Colombia | 46 | 31 | 14 | 8 | −32.6 | −42.9 |
| Korea | 41 | 21 | 13 | 8 | −48.8 | −38.5 |
| Turkey | 44 | 32 | 17 | 10 | −27.3 | −41.2 |
| Mexico | 45 | 38 | 12 | 8 | −15.6 | −33.3 |
| Brazil | 40 | 36 | 11 | 9 | −10.0 | −18.2 |
| Argentina | 24 | 21 | 9 | 8 | −12.5 | −11.1 |
| Yugoslavia | 23 | 18 | 10 | 8 | −21.7 | −20.0 |

Source: World Bank, *World Development Report*, 1980, Annex Table 18.

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# Income Instability and Consumption–Savings in South Korean Farm Households, 1965–1970

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**Summary.** – This paper describes the sources and extent of income instability among a representative sample of South Korean farm households during 1965–1970. An index of income instability is included in a consumption function to estimate its effects on savings–consumption behaviour. Authors conclude that the households studied saved large amounts and that part of this saving was due to unstable incomes.

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A major tenet in capitalist as well as socialist economics is that concentration of economic surpluses or income is necessary if savings propensities are to be high and capital formation rapid. Profit-makers in capitalist societies are thought to inherit high savings propensities, while socialists argue that the state is the most proficient saver. It has been a virtual article of faith among economists that little or no voluntary savings can be mobilized under any economic system until *per capita* incomes are high. As a result, most savings mobilization programmes emphasize involuntary techniques, or aim voluntary mobilization efforts mainly at high-income groups.

Results from recent research in Taiwan and South Korea, along with additional evidence from several other low-income countries, appear to be inconsistent with this widely held tenet (Ong *et al.*, 1976; Hyun *et al.*, 1979; Adams, 1978). These results show surprisingly large savings propensities among rural households with average *per capita* incomes well below US$200. This evidence suggests that factors, in addition to absolute levels of income, may strongly influence savings behaviour. At least three of these additional factors have surfaced in the literature. The first relates to the quality of the household's income flow. Friedman (1957) has argued that disturbances in income flows may cause households to interpret part of their income as being transitory, and that households tend to save a large part of this transitory income. Two additional factors have been stressed by Wai (1972). He has argued that the incentives and opportunities to save are important factors influencing consumption–savings decisions. Unfortunately, it is very difficult, without a controlled experiment, to test the importance of these two latter factors in household decisions. This is especially true in rural areas where many incentives to save are weak and very limited opportunities exist for holding savings. As will be shown later, it does appear possible to measure empirically the importance of income stability in savings decisions.

In the discussion that follows we use South Korean farm household data to assess the importance of income instability in savings behaviour. We pursue three objectives. The first is to describe the extent and sources of income instability among South Korean farm households from 1965 to 1970, a period of rapidly increasing income. The second objective is to assess how income instability affected consumption–savings decisions. The final objective is to draw some policy implications from the South Korean experience which may be helpful to other low-income countries that want to increase savings propensities.

Some background on recent changes in the South Korean economy and farm households is presented to set the stage for the analysis that follows.

## 1. BACKGROUND

South Korea often has been cited by economists as a case of successful development (Brown, 1973). During the past 15 years the South Korean economy has experienced rapid growth, with an average annual growth rate of almost 10% (EPB, 1977). With this growth, the economic make-up of the country has changed significantly. The share of mining and manufacturing in the overall economy increased steadily

from 15% in 1962 to 31% in 1976, while the share of agriculture, forestry and fisheries decreased from 40 to 25% (EPB, 1977). With the decline in relative importance, Korea's agricultural sector has performed satisfactorily in many respects. From 1962 to 1976, agricultural land and labour productivities expanded by 7–10% a year. As a result, real agricultural production increased at an average growth rate of more than 4% annually.

As a result of these changes, incomes in rural areas significantly increased over the past 15 years. As can be seen in Table 1, both the average net and disposable incomes of farm households increased by more than two-and-a-half times in real terms from 1962 to 1976. During this period, about one-fifth of the average farm household income came from off-farm sources. The low income figures for 1965–1967 were due to droughts, floods and low food prices. The high income figure in 1971 was mainly due to increased prices for food grains (KDI, 1975).

It can also be noted in Table 1 that consumption increased significantly, but less than did incomes. As a result, the ratio of consumption to disposable income decreased steadily from 0.85 in 1962 to 0.66 in 1976. This resulted in significant expansion in expressed farm household savings. Changes in overall consumption patterns also occurred; average farm household food consumption decreased from 56% of total consumption to 46%, while expenditures for education and miscellaneous items increased. The food consumption patterns also changed. During 1962–1970, consumption of the staples, rice and barley, decreased absolutely, while expenditures on foods other than staples increased substantially (MAF, various years; EPB, 1977). Farm households have improved significantly their diets and cultural activities with the additional income.

The Korean farm households are large and have relatively well educated family members. As a result, most of the labour force used in the farm is supplied by the family. Small farm size and intensive production are the main characteristics of farm units in South Korea.

## 2. INCOME STABILITY

These substantial changes in household economic conditions have been associated with significant amounts of income instability (Ro, 1978). Individual farm household data are not available to document the extent of this instability prior to 1965. Representative household information collected by the Farm Household Economy Surveys are available, however, for 1965, 1968, 1969 and 1970.[1] Data for 128 households included in the Surveys in all 4 years give substantial insights into the extent and nature of rural income flows.

Income instability is a measure of the pattern and extent of transitory income. The average absolute deviation and the coefficient of variation appeared to be the most common measures discussed in the literature (see Canh, 1974; Girao *et al.*, 1974). Any measure, however, represents deviations from some expected income. Households likely differ a good deal in the way they form their income expectations. Some, for example, may ignore trends and anticipate that future incomes will be equal to recent or current income. These households interpret differences between recent income and future income as transitory income. Other households may feel that things are getting predictably better or worse and include some trend factor in their formulation of expected incomes. If income grows more rapidly or more slowly than this trend factor, the household would interpret this unanticipated change as transitory income.

As can be noted in Table 1, the average rural household income in South Korea changed erratically from 1960 to 1965. From 1965 to 1970, however, the average household experienced significant increases in real income. Since we have no way of knowing how households formed their income expectations, we use a measure that likely underestimates the households' perception of income instability. In selecting our measure of income instability, we assumed that each household was able to correctly predict the average yearly increase or trend in its real income over the 1965–1970 period, and that only the differences between this average and more rapid or slower rates of growth in each year were interpreted as unstable income. This index measures the average absolute variation of each household's income growth rate around its mean income growth rate over a given time period. The general form of this index was developed by Lundberg (1968) and later applied to Taiwanese farm household data by Canh (1974). Because of the sharp increases in income between 1965 and 1970, income expectations in South Korea probably lagged behind actual income increases. If this was true, the index we use underestimates the degree of income instability. The index is defined as:

$$IS = \tfrac{1}{3}(|X_1-\bar{X}| + |X_2-\bar{X}| + |X_3-\bar{X}|), \quad (1)$$

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Table 1. *Income composition, and consumption–savings patterns of farm households in South Korea, average per household,* 1962–1976

| | Income | | | | Consumption | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Household net income (1000 Won)* | Net farm income (%) | Net off-farm income (%) | Household disposable income (1000 Won) | Total household consumption (1000 Won) | Food (%) | Clothing (%) | Housing and utilities (%) | Education and miscellaneous (%) | Ratio of consumption to disposable income |
| 1962 | 177 | 80 | 20 | 172 | 145 | 56 | 8 | 14 | 23 | 0.85 |
| 1963 | 201 | 81 | 19 | 195 | 171 | 60 | 7 | 14 | 21 | 0.88 |
| 1964 | 204 | 83 | 17 | 197 | 166 | 59 | 7 | 11 | 23 | 0.84 |
| 1965 | 166 | 79 | 21 | 159 | 150 | 53 | 8 | 12 | 27 | 0.94 |
| 1966 | 177 | 78 | 22 | 169 | 150 | 50 | 9 | 12 | 29 | 0.88 |
| 1967 | 190 | 78 | 22 | 184 | 164 | 49 | 9 | 12 | 30 | 0.89 |
| 1968 | 212 | 77 | 23 | 205 | 170 | 47 | 9 | 13 | 31 | 0.83 |
| 1969 | 241 | 77 | 23 | 233 | 189 | 46 | 9 | 12 | 32 | 0.81 |
| 1970 | 259 | 76 | 24 | 253 | 211 | 46 | 8 | 12 | 34 | 0.84 |
| 1971 | 332 | 82 | 18 | 326 | 229 | 47 | 8 | 12 | 33 | 0.70 |
| 1972 | 352 | 82 | 18 | 346 | 257 | 48 | 7 | 12 | 32 | 0.74 |
| 1973 | 369 | 81 | 19 | 361 | 262 | 47 | 7 | 13 | 32 | 0.73 |
| 1974 | 366 | 80 | 20 | 358 | 234 | 48 | 7 | 15 | 30 | 0.65 |
| 1975 | 373 | 82 | 18 | 365 | 263 | 47 | 7 | 13 | 33 | 0.72 |
| 1976 | 444 | 80 | 20 | 433 | 287 | 46 | 7 | 14 | 33 | 0.66 |

Source: Ministry of Agriculture and Fisheries (MAF), *Report on the Results of the Farm Household Economy Survey*, yearly reports from 1962 to 1976 (Seoul, Korea: MAF, various years, 1963–1977).

* Adjusted to 1970 prices using Wholesale Price Indexes for South Korea. Average official rate of exchange for Won to 1 US dollar was 304 in 1970.

Table 2. *Characteristics in* 1970 *of* 128 *panel households in South Korea by income instability groups*

| | Total | Disposable income instability index (1965–1970) | | |
|---|---|---|---|---|
| | | 0–15 | 15–30 | 30+ |
| Number of households | 128 | 39 | 48 | 41 |
| Family size (persons) | 5.96 | 6.33 | 5.88 | 5.71 |
| Farm size (ha) | 0.92 | 0.98 | 0.87 | 0.91 |
| Disposable income (Won)* | 233,862 | 238,687 | 222,781 | 242,244 |
| Total consumption (Won) | 192,188 | 203,013 | 187,014 | 187,724 |
| Average annual growth (1965–1970) of | | | | |
| Total net income | 16.7 | 10.7 | 13.9 | 25.7 |
| Disposable income | 17.3 | 10.9 | 14.4 | 26.8 |
| Farm income | 19.1 | 15.3 | 18.6 | 23.1 |
| Off-farm income | 57.9 | 31.8 | 57.1 | 83.8 |

Source: Computed from the data for 128 panel farm households in South Korea, 1965–1970.
* In 1970 the average official rate of exchange for Won was 304 to each US dollar.

where:

$$X_1 = [(Y_{68} - Y_{65})/Y_{65}]100/3,$$
$$X_2 = [(Y_{69} - Y_{68})/Y_{68}]100,$$
$$X_3 = [(Y_{70} - Y_{69})/Y_{69}]100,$$

and

$$\bar{X} = 1/3(X_1 + X_2 + X_3).$$

The $Y$ terms represent individual household incomes for the respective years. The average annual rate of growth of each household's income for 1965–1970 is represented by $\bar{X}$. Four different measures of household income are used: household net income, household disposable income, household net farm income, and household net off-farm income. Income instability indexes are constructed for these measures of income for each of the 128 households.

Information on characteristics in 1970 of the households is presented in Table 2. The information is also divided into three income instability groups: those households with relatively low indexes of 0–15, those with medium indexes of 15–30, and those with relatively large indexes of more than 30. The groups were defined so that about one-third of the households fell into each instability group. As can be noted, there was little difference among the three groups in family size, farm size, disposable income, and total consumption. There were, however, substantial differences in average annual growth rates of income among the three income instability groups. Households with the most unstable incomes also experienced the highest average annual growth rates in all types of income.

In Table 3 several statistics on the instability indexes for the four different types of income are presented. As can be noted, there were large differences in instabilities of various income types among households. The ranges of household total net and disposable income instabilities were from 5 and 6 to about 113

Table 3. *Descriptive statistics of instability indexes from various income types of* 128 *panel farm households in South Korea,* 1965–1970

| | Income types | | | |
|---|---|---|---|---|
| | Total net income | Disposable income* | Net farm income | Net off-farm income |
| Median† | 20 | 21 | 26 | 57 |
| Mean | 27 | 28 | 30 | 105 |
| Range | 108 | 113 | 112 | 803 |
| Minimum | 5 | 6 | 3 | 3 |
| Maximum | 113 | 119 | 115 | 806 |
| S.D.‡ | 22 | 22 | 21 | 131 |

Source: Computed from the data for 128 panel farm households in South Korea, 1965–1970.
* Household total net income less taxes and interest payments.
† This is the average value of instability indexes of the 10 households closest to the actual median value.
‡ Standard deviation.

and 119, respectively. These ranges were about the same as the range for net farm income instability, but much narrower than the range of off-farm income instability. As can be noted, the median and mean values of the index of off-farm income instability were much larger than those for other income measures.

Another interesting point shown in Table 3 is that total income flows were more stable than the various components. As can be seen, the median income instability indexes for household net and disposable income among all 128 farm households were 20 and 21, respectively, while the same indexes for farm and off-farm incomes were 26 and 57, respectively.[2] It appears that households were able to blend relatively unstable farm and off-farm income flows into a more stable total household income stream.

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## 3. ESTIMATING MODELS

In recent years increased attention has been paid to the permanent income notion in the analysis of consumption–savings behaviour. Various consumption functions based on the permanent income model have been developed. One of the most recent elaborations is an interaction consumption function.[3] This function builds on the assumption that additional variables other than income affect the marginal propensity to consume (MPC) out of permanent income. In this study, five variables, in addition to the income instability index, are tested in the interaction consumption function given by:

$$C = b_1 Y + b_{20} Y_p + b_{21} ISY_p + b_{22} INY_p + b_{23} CRY_p + b_{24} LQY_p + b_{25} RTY_p + b_{26} FAY_p + e, \quad (2)$$

where $b_{ij}$s are parameters and $e$ is the error term. Other variables in this and following expressions are defined in Table 4. As can be noted in the above equation, the interaction consumption function allows the slope of the permanent income variable to be changed by the levels of additional variables. This characteristic enables examination of the possible effects of additional variables on consumption–savings behaviour by looking at how the levels of those additional variables affect the MPC from permanent income.

Income instability measures the variability of income over time. Other things being equal, it is expected that households with unstable income streams have lower MPCs than those with stable income. The coefficient $b_{21}$, therefore, is expected to be negative. The income source ratio measures the relative importance of farm income in total household income. Under the assumption that farm households have attractive on-farm investment opportunities, the relationship between MPC ($b_{22}$) and the income source ratio is hypothesized to be negative (Ahn *et al.*, 1979).

Credit may be used by farm households to finance consumption expenditures.[4] The relationship between MPC ($b_{23}$) and household credit use is expected, therefore, to be positive. It also has been suggested that liquid asset holdings are one of the important factors affecting

Table 4. *Definitions of variables used*[*]

| | | |
|---|---|---|
| $C$ | = | total household consumption (all expenditures not directly related to production activities in a given year) |
| $Y$ | = | household disposable income (total household receipts minus tax and interest payments) |
| $Y_p$ | = | permanent income (the general level of income or normal income) |
| $IS$ | = | the index of household disposable income instability |
| $IN$ | = | the income source ratio defined as the ratio of gross farm income to gross household income |
| $CR$ | = | the value of household credit used during the year |
| $LQ$ | = | the value of liquid asset holdings at the beginning of the year |
| $RT$ | = | the rate-of-return on capital defined as the ratio of gross household income to total asset holdings in the previous year |
| $FA$ | = | the number of family members |
| $LA$ | = | total cultivated land (ha) |
| $PA$ | = | the ratio of paddy land to total cultivated land |
| $AW$ | = | average number of work days per farm worker (total family work days divided by the number of farm workers) |
| $DP$ | = | the ratio of dependents to total family members |

[*] All variables except the indexes, are for 1970 and are expressed in per household terms. Those variables with monetary value are expressed in units of 100 Won.

consumption–savings behaviour (Crockett and Friend, 1960). It is expected that liquid asset holdings are positively related to the MPC ($b_{24}$).

The rate-of-return on capital reflects the profitability of on-farm investment or the opportunity costs of current consumption vs future consumption. Households with high expected rates-of-return on capital tend to increase their investments in farm capital and to switch more of their consumption to savings (Ahn *et al.*, 1979). The coefficient $b_{25}$ is expected, as a result, to be negative. Many empirical studies have found that the number of family members does not have a significant effect on total consumption, but does have a strong influence on some important components of total consumption (Cahn, 1974). The coefficient $b_{26}$ is expected to be positive.

## 4. ESTIMATED PERMANENT INCOME

Several measures of permanent income have been proposed. In a recent study of consumption–savings behaviour, estimates from an income regression function and 3-year weighted average incomes were used alternatively as proxies for permanent income (Hyun *et al.*, 1979). This study showed that the former adequately represents permanent income when time series income information is not available. The income regression function is a modification of an 'earnings function' which is based on the idea that the general level of income (permanent or normal income) is a function of several major inputs such as labour, land and capital (Bhalla, 1978).[5] Using this income regression function, the permanent income was estimated as follows:

$$\begin{aligned} Y = {} & \underset{(346.92)}{915.05} + \underset{(181.12)}{1108.80}LA + \underset{(0.077)}{0.1595}LQ \\ & + \underset{(41.04)}{204.49}FA - \underset{(388.30)}{1746.38}IN \\ & + \underset{(236.34)}{778.85}PA + \underset{(0.126)}{0.2145}CR \\ & + \underset{(2.18)}{4.50}AW - \underset{(368.56)}{972.15}DP, \end{aligned}$$

$R^2 = 0.658$, S.E. = 692.00, $F$-ratio = 28.57,

where $Y$, the predicted value of current observed disposable income in 1970, represents permanent income. The figures shown in parentheses below each estimated coefficient are the standard errors. An estimated coefficient indicates that a single unit change in a variable, when other variables are constant, increases (or decreases) permanent income by the value of the coefficient times 100 Korean Won per household. Due to the nature of the ordinary least-square method used, the mean value of permanent income was the same as that of current observed income and the mean value of transitory income (residuals) was zero.

## 5. EMPIRICAL RESULTS

To estimate permanent income a cross-sectional analysis was done on the 128 panel farm households for the year 1970. In the first step of the analysis, a basic permanent income consumption function, including only income variables, was estimated:

$$C = \underset{(0.0776)}{0.3274}Y - \underset{(0.0803)}{0.4755}Y_p,$$

$R^2 = 0.924$, S.E. = 585.71, $F$-ratio = 769.51.

The standard error of each estimated coefficient is given below each coefficient. All variables are expressed in per household terms and in 100 Korean Won.

The $R^2$ and the $F$-statistic show that the two income variables explain rather well the variation in current consumption. Both coefficients of the income variables were significantly different from zero. The MPC out of permanent income, the sum of coefficients of the two income variables, was about 0.80 and the MPC out of transitory income was about 0.33. This evidence supports the hypothesis that the MPC out of transitory income is greater than zero, but less than the MPC out of permanent income.

The estimates of the interaction consumption function equation (2), are provided in Table 5. The results from the model are significant. The estimated coefficients of the income variables ($Y$ and $Y_p$) are statistically significant. As the interaction consumption function implies, the sum of the coefficients of income variables represents the MPC out of permanent income when all other variables have given values. At the mean level of each additional variable, the MPC out of permanent income is about 0.80, which is the same as that estimated from the basic model.

The effect of income instability was significant and negative. This result suggests that households with high income instability, other things being equal, consume less of the increments in their incomes than households with more stable incomes. This also suggests that the unstable income flows cause farm households to save more at the margin.

Table 5. *Estimation results of the interaction consumption function and mean values per household in* 1970 *for* 128 *panel households*†

| Variables | Mean values | Consumption function estimates |
|---|---|---|
| $Y$ | 2338.62 | 0.3704** (0.0763) |
| $Y_p$ | 2338.62 | 0.8598** (0.1503) |
| $IS$ ‡ | 28.45 | −0.0023* (0.0011) |
| $IN$ | 0.81 | −0.2525* (0.1175) |
| $CR$ | 317.18 | 0.00006* (0.00003) |
| $LQ$ | 1323.15 | 0.000002 (0.00002) |
| $RT$ | 0.46 | −0.1777* (0.0798) |
| $FA$ | 5.96 | −0.0167 (0.0114) |
| $R^2$ | – | 0.9345 |
| S.E. | – | 558.2716 |
| $F$-ratio | – | 214.10000** |
| MPC at the mean levels § | – | 0.800 |

* Significant at the 0.05 probability level (one tail – $t$-test).
** Significant at the 0.01 probability level (one tail – $t$-test).
† Except for $IS$, $IN$, $RT$ and $FA$, values are in 100 Korean Won (1 US$ = 304 Korean Won in 1970).
‡ Income instability index number based on the average absolute variation of an income growth rate around its mean (see the formula presented in the text).
§ The figure is the MPC out of permanent income at the mean levels of all additional variables.

The ratio of gross farm income to gross household income also has a negative effect on the MPC out of permanent income. This result implies that the closer to full-time farming a farm household is, the smaller is its consumption propensity, and thus, the larger its savings propensity. A positive and significant relationship was found between the MPC out of permanent income and the amount of credit used. The coefficient associated with the interacted credit variable was positive and significant in the model used. These results indicate that a substantial portion of the credit used by farm households is associated with consumption.

It also was found that farm households are sensitive to economic incentives in determining their consumption. The negative coefficient of the interacted rate-of-return on capital was significant at the 0.05 probability level. Households with attractive rates-of-return on capital tend to reduce their consumption.

The effect of liquid asset holdings on household consumption–savings decisions was found to be negative, but not statistically significant. Moreover, in an alternative consumption model based on a Keynesian formulation the coefficient was positive and significant.[6] The coefficient of the interacted family size variable was negative but it was only marginally significant.

## 6. CONCLUSIONS

Several conclusions useful for policy-makers might be drawn from this analysis. The first is that very substantial voluntary savings emerged among the households studied. While it is not entirely clear what caused these high savings propensities, it does appear that a substantial amount of income instability was associated with this favourable savings performance. This income instability led households to interpret a significant part of their incomes as transitory, and caused savings propensities that were very high out of this income component. While we could not shed much light on why savings

propensities were also high out of permanent income, we feel this might be at least partially explained by attractive incentives and opportunities to save in Korea during the late 1960s.

A second conclusion is that policy-makers may be able to design more satisfactory programmes to mobilize and encourage saving. These programmes ought to pay careful attention to incentives and opportunities to save in addition to the income instability issue. Policy-makers ought to be particularly aggressive in designing savings mobilization programmes that focus on regions and households experiencing a good deal of income instability. The instability may be due to rapid increases in off-farm employment, highly variable weather, or rapid technological change.

The final general conclusion that we draw is that economists have overemphasized the importance of absolute income levels in determining savings behaviour. On the basis of the South Korean experience, we feel that rural poor will save and that factors in addition to absolute income levels are important in determining saving propensities. A more enlightened and positive approach to mobilizing voluntary savings will result in accelerated capital formation, better performing financial markets, and a more equitable participation in the economic system by the rural poor.

## NOTES

1. For more details on these surveys see Ro (1978). Household data for 1966 and 1967 were destroyed in the early 1970s.

2. In an earlier study of income instability among Taiwanese farmers, Canh (1974) reported very similar results; the median values of total net income, net farm income, and net off-farm income were about 22, 23 and 71, respectively, and the mean values were about 28, 42 and 227, respectively.

3. A modification of this function was used by Hyun *et al.* (1979) in a recent study of consumption–savings behaviour among South Korean farm households. For more detailed consideration on this function, see Hyun *et al.* (1979), and also Ro (1978).

4. In the case of South Korea, the reported portion of credit used by an average farm household for living expenses to total household credit use has been around 15% for a number of years (MAF, various years).

5. For more details on the income regression function, see Hyun *et al.* (1979), and also Ro (1978).

6. For the purpose of comparison, an interaction consumption function based on a Keynesian formulation was also estimated. Except for the liquid asset variable, all coefficients had the same sign as found in the model based on the permanent income hypothesis. This inconsistency may result because a part of the liquid asset holdings were absorbed into the permanent income component from the income regression function.

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# Dual-Gap Analysis for the Sudan

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**Summary.** – The study is an exercise in dual-gap analysis with reference to the Sudan. Investment and import requirements are estimated for the Six-Year Plan period 1977/1978–1982/1983 and are then compared with forecasts of savings and export earnings. The results are compared with the Plan projections of the dominant constraint on growth. The conclusion is that the Plan understates the size of both the domestic savings–investment gap and the foreign exchange gap and that foreign resource flows would have to be approx. 50% higher than envisaged for the target growth rate of 7.5% to be achieved.

## 1. INTRODUCTION

Several studies[1] have used dual-gap analysis to investigate the dominant resource constraint limiting growth in developing countries, and to estimate future resource requirements to achieve a particular target rate of growth. Most of these studies point to the foreign exchange gap as the dominant constraint, particularly for countries in the take-off stage of development. This paper is the first attempt to undertake dual-gap analysis for the Sudan based on two alternative growth rate assumptions: first, 5.5% growth per annum which was the historical average growth rate between 1960 and 1975, and second, 7.5% growth per annum which is the target growth rate of the Sudanese Six-Year Plan 1977/1978–1982/1983.[2] The study suggests that while foreign exchange is scarce, the projected gaps between investment requirements and domestic saving and between import requirements and export earnings are of roughly equal magnitude, and that policies to raise the level of domestic saving must assume as much importance as policies to augment the quantity of foreign exchange if dependence on foreign assistance is to be reduced. The result is consistent with the original Chenery hypothesis that in the early stages of development a domestic savings–investment gap may predominate, reflecting the low level of monetized saving in countries in the pre-take-off stage of development. The purpose of this paper is thus twofold: first to make quantitative estimates of investment requirements in relation to forecast domestic saving, and import requirements in relation to expected export earnings, under the two growth rate assumptions, and secondly to compare the estimates with projections made in the Six-Year Plan which, in our view, underestimates the shortfall of both saving below investment requirements and exports below import requirements over the Plan period 1977/1978–1982/1983. Part of the object of this paper, therefore, is to make an independent assessment of the consistency of the Sudanese Six-Year Plan projections. Section 2 of this paper briefly outlines the theoretical framework of dual-gap analysis. In Section 3, the framework is applied to the Sudan and calculations are made of the domestic savings– investment gap and the export–import gap, using estimates of the propensity to save, the incremental capital–output ratio, future export growth, and import requirements recognizing the different import coefficients attached to consumption and investment expenditure. The last section of the paper compares the results with those of the Six-Year Plan, and comments on the future growth prospects of the Sudan in the light of the comparison.

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## 2. THE THEORETICAL FRAMEWORK

The methodology of dual-gap analysis is well known, and also the criticisms of it – particularly the assumptions of a fixed relationship between investment requirements, import requirements and growth and the lack of substitutability between domestic and foreign resources.[3] The criticisms, however, relate more to the policy implications that investigators have drawn from the results than to the projections themselves, particularly where the projections relate to a relatively short time span. In the short run – say a 5–6 year planning period – even critics of dual-gap analysis would concede that investment and import requirements for growth are bound to be fairly rigid, and the scope for substitutability between domestic and foreign resources limited. Thus, the existence of 'two-gaps' *ex ante* is quite possible, and they will only be equal by chance. Foreign resource inflows will thus be required to fill the dominant gap if the target rate of growth is to be achieved.

To estimate the savings–investment gap, use is made of the growth identity, $g = s/v$, where $g$ is the growth rate $(\Delta Y/Y)$; $s$ is the savings–investment ratio $(I/Y)$, and $v$ is the incremental capital–output ratio $(I/\Delta Y)$. Given the target growth rate, $g^*$, and an estimate of $v$, investment requirements as a proportion of output can be calculated as $g^*v$. The savings–investment gap is then estimated as the difference between forecast saving at the target level of income and investment requirements, measured in absolute terms.

To estimate the export–import (or foreign exchange) gap, use is made of a similar growth identity incorporating the idea of a fixed relationship between growth and import requirements. Let $g = im$, where $g$ is the growth rate, $i$ is the ratio of imports to output $(M/Y)$ (determined by the availability of export earnings) and $m$ is the (fixed) incremental output–import ratio $(\Delta Y/M)$. Given the target rate of growth, $g^*$, and an estimate of $m$, import requirements as a proportion of output can be calculated as $g^*/m$. The export–import gap is then estimated as the difference between forecast export earnings and import requirements measured in absolute terms.

It is intuitively obvious, and can be easily shown,[4] that if the parameters of the model are fixed, and domestic and foreign resources are not substitutable, then one or other of the resources (domestic saving or foreign exchange) will go unutilized if the dominant gap is not filled by foreign resource inflows. The role of foreign assistance in bridging the dominant gap to avoid resource waste is considered to be the distinctive contribution of dual-gap analysis to development theory. If domestic and foreign resources are easily substitutable, however, and $v$ and $m$ are not fixed, dual-gap analysis clearly loses a lot of its force, although there will still be a resource gap to fill. This analysis proceeds on the assumption that in the Sudan, over the short Six-Year Plan period in which we are interested, domestic and foreign resources will not be *easily* substitutable, and that the scope for economizing on investment and import requirements per unit of additional output will be strictly limited. These assumptions are embodied in the Plan itself and can be justified by reference to the low stage of development of the Sudanese economy and the structural rigidities entailed, the low level of industrialization, the heavy dependence on imported inputs, and the already strict control of consumption good imports.

We turn now, therefore, to the estimation of investment requirements, savings, import requirements and exports over the 6-year planning period 1977/1978–1982/1983, with particular focus on the dominant constraint. Two target rates of growth are taken: a 7.5% annual growth rate which is the target rate of growth of the Plan, and the less ambitious rate of 5.5%, which seems to us more realistic in the light of historical experience and our subsequent findings.

## 3. ESTIMATION AND EMPIRICAL FINDINGS

### (a) *Investment requirements*

The calculation of investment requirements for growth first requires an estimate of the incremental capital–output ratio. If this estimate is based on historical time series, the act of faith is also required that the ratio which has prevailed in the past will prevail in the future over the planning period. Over a short period, constancy of the ratio may not be an unreasonable assumption unless the country is emerging from a prolonged recession or there is envisaged a change in the structure of investment towards either more or less capital-intensive industries. Attempts to estimate the ratio statistically using regression analysis failed. Year by year there is extreme variability in the quantity of investment associated with a given change in output. We therefore took the period as a whole and estimated the incremental capital–

output ratio ($v$) by applying the growth formula $g = s/v$ so that $v = s/g$. The average investment ratio (comprising domestic and foreign saving) over the period 1960/1961–1974/1975 was 0.134, and the average rate of growth of output was 0.055, giving an estimate for $v$ of 2.44.[5] This may be on the low side for future years with the greater emphasis in the Six-Year Plan on investment in manufacturing industry. The incremental capital–output ratio assumed by the Plan is 3. We decided to take the Plan figure of 3 in calculating investment requirements. The figure is probably more realistic than the lower historical ratio, and using it enables us to compare our estimates of investment requirements on the same assumptions as those of the Plan estimates. Investment requirements in period $t$ are estimated as $(g^* v)Y_t$, where $g^*$ is the target growth rate.

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### (b) *Savings*

Accepting the domestic savings data at its face value, the average propensity to save over the period 1960/1961–1974/1975 was 8.4%, and virtually constant. From the published statistics there is no evidence that the marginal propensity to save exceeds the average so as to produce a rising average propensity to save through time. This conclusion is confirmed by statistical analysis. The level of saving, and the ratio of saving to national income, in developing countries is likely to be a function of many variables affecting the ability and willingness to save. The main determinants of the ability to save are the level of income, the rate of growth of income and the distribution of income between rich and poor. The willingness to save will depend, in turn, on such monetary factors as the existence of acceptable and reliable monetary institutions, the interest rate offered in relation to risk and time preference, and general societal attitudes to consumption and the accumulation of wealth. Having said this, the time-series and cross-section evidence for a wide sample of countries gives the strongest support of all to the Keynesian hypothesis that the level of saving is primarily a function of the level of income.[6] This also appears to be true for the Sudan. Various savings functions were experimented with including variables such as the rate of growth of income (following the life-cycle hypothesis) and export earnings,[7] but only the absolute level of income appears to be statistically significant. Adopting the simple Keynesian savings function, and regressing the level of domestic saving on gross domestic product over the period 1960–1975 gave the following result (standard error in brackets):

$$S_t = \underset{(0.006)}{8.464 + 0.084 Y_t} \quad (R^2 = 0.919),$$

where the units of measurement are in millions of Sudanese pounds. The correlation coefficient is extremely high, and the very small intercept[8] shows that the average and marginal propensities to save have been roughly equal over the period. In projections of saving over the period 1977/1978–1982/1983 this estimated Keynesian savings function is employed. Apart from the fact that other variables that might affect saving seem to be unimportant, the function has the advantage that $Y_t$ is predetermined by the growth rate assumed so that the level of saving associated with the growth rate assumptions can be predicted with some confidence. With other independent variables, even if they were important, they may not be easily predictable in the future, and therefore the future level of saving to meet investment requirements at any assumed growth rate would be equally unpredictable.

### (c) *Import requirements*

The calculation of import requirements for growth requires an estimate of the incremental output–import ratio ($\Delta Y/M = m$). This ratio can be calculated in an analogous way to the estimation of the incremental capital–output ratio by using the growth formula $g = im$, where $i$ is the historical ratio of imports to income. Thus $m = g/i$. The average import ratio over the period 1960/1961–1974/1075 was 0.19, and the average growth rate was 0.055, giving an historical estimate for $m$ of 0.29. Import requirements in successive years of the plan may be estimated as $(g^*/m)Y_t$. It is not possible, however, to attach any statistical significance to the estimate of $m$.

An alternative approach to the estimation of import requirements, which can be derived from the earlier growth formula, is to disaggregate imports into investment goods and consumption goods, and to estimate the import coefficients attached to investment and consumption. This approach has the advantage in that in moving to a higher growth path it allows for a change in $m$ if the import coefficient of investment expenditure differs from that of consumption expenditure. $m$ may rise or fall depending on the relation between the change in the growth rate and the change in import requirements as the investment ratio rises. From the growth

equation $g = im$, we can write:

$$g = (i_I + i_C)m, \tag{1}$$

where $i_I$ is the ratio of investment good imports to income, and $i_C$ is the ratio of consumption good imports to income. Now $i_I$ and $i_C$ can be written as:

$$i_I = \frac{M_I}{Y} = \frac{M_I}{I} \cdot \frac{I}{Y}, \tag{2}$$

and

$$i_C = \frac{M_C}{Y} = \frac{M_C}{C} \cdot \frac{C}{Y}, \tag{3}$$

where $M_I$ is investment good imports; $M_C$ is consumption good imports; $I$ is investment; $C$ is consumption, and $M_I/I$ and $M_C/C$ are the import coefficients of investment and consumption, respectively. Substituting equations (2) and (3) into equation (1) gives:

$$\frac{\Delta Y}{Y} = \left(\frac{M_I}{I} \cdot \frac{I}{Y} + \frac{M_C}{C} \cdot \frac{C}{Y}\right)\frac{\Delta Y}{M}. \tag{4}$$

Multiplying both sides by $Y$ and $M$ and dividing by $\Delta Y$ gives:

$$M = \frac{M_I}{I} \cdot I + \frac{M_C}{C} \cdot C. \tag{5}$$

With data on $M$, $I$ and $C$, equation (5) can be estimated, and the parameter values (import coefficients) on $I$ and $C$ can be used for forecasting import requirements in the future consistent with the levels of investment and consumption associated with the target growth rate. Fitting equation (5) to Sudanese data over the period 1960/1961–1974/1975 gave the following result (standard errors in brackets):[9]

$$M = -20.39 + 0.138(C) + 0.607(I), \quad R^2 = 0.961.$$
$$\qquad\quad (0.053) \qquad (0.330)$$

The result is very much what one might have expected *a priori*, namely the import coefficient attached to investment expenditure is substantially higher than the coefficient attached to consumption expenditure. This reflects the fact that the Sudan is heavily dependent on investment good imports, while a much higher proportion of consumption expenditure is on domestically produced goods and consumption good imports are fairly strictly controlled. A common difficulty with this type of import function is that consumption and investment expenditure tend to be intercorrelated reducing the statistical significance of the estimated coefficients. It appears that the coefficient on $I$ is not well determined at the conventional 95% level of confidence, but multicollinearity does not statistically bias the coefficient estimates themselves. This is the basic equation used for forecasting future import requirements on different growth assumptions. Like the savings function to be used, this import function also has the advantage that the independent variables are predetermined by the annual growth rate and the associated investment requirements. In addition, however, as a check, our historical estimate of the incremental output–import ratio of 0.29 is also used. While the latter approach holds constant the incremental output–import ratio, the disaggregated approach allows the implied estimate of $m$ to vary as the economy moves to a higher growth path.

### (d) *Exports*

Sudan's exports are dominated by primary products, especially cotton, ground nuts and gum Arabic. The volume of exports is largely determined by supply conditions, while earnings depend on supply and the price determined by world demand conditions. Both supply and world prices are notoriously difficult to forecast, making the forecast of export earnings equally difficult. A good estimating equation explaining the past behaviour of export earnings is not much help if the independent variables in the equation cannot be forecast with any accuracy and are outside planning control. Experiments were made with various export demand functions making export earnings a function of the price of exports and demand conditions in major importing countries, but the explanatory power of the equations was low.[10] If export earnings are as much supply determined as demand determined, the problem is measuring variations in supply. In view of these difficulties, a simple exponential trend rate of growth of exports is assumed, based on historical experience. In fact, fitting an exponential trend to past data gives a better statistical fit than any of the more sophisticated export demand functions. The estimated trend equation is (standard error in brackets):

$$\log X = 3.992 + 0.0641t, \quad R^2 = 0.827.$$
$$\qquad\quad (0.0080)$$

In estimating the export–import gap, therefore, an export growth rate of 6.41% is assumed. This compares with the growth rate assumed by the Plan of 11% per annum, which on the basis of the historical experience and recent trends in the world economy seems overoptimistic.

Table 1. *Estimates of the savings–investment and export–import gaps assuming a 5.5% growth of GDP, 1977/1978–1982/1983 (£s million)*

| | Base year 1976/1977 | 1977/1978 | 1978/1979 | 1979/1980 | 1980/1981 | 1981/1982 | 1982/1983 |
|---|---|---|---|---|---|---|---|
| GDP | 1822 | 1922.2 | 2027.9 | 2139.4 | 2257.1 | 2381.2 | 2512.2 |
| Savings | 155 | 169.9 | 178.8 | 188.2 | 198.1 | 208.5 | 219.5 |
| Investment | 319 | 317.2 | 334.7 | 353.0 | 372.4 | 392.9 | 414.5 |
| Savings–investment gap | 164 | 147.3 | 155.9 | 164.8 | 174.3 | 184.4 | 195.0 |
| Exports | 214 | 228.2 | 243.3 | 259.4 | 276.5 | 294.9 | 314.4 |
| Imports* | 378 | 413.8 | 438.0 | 463.2 | 489.8 | 518.1 | 547.6 |
| Export–import gap | 164 | 185.6 | 194.7 | 203.8 | 213.3 | 223.2 | 233.2 |
| Exports | 214 | 228.2 | 243.3 | 259.4 | 276.5 | 294.9 | 314.4 |
| Imports† | 378 | 365.2 | 385.3 | 406.5 | 428.9 | 452.4 | 477.3 |
| Export–import gap | 164 | 137.0 | 142.0 | 147.1 | 152.4 | 157.5 | 162.9 |

* Estimates based on the import coefficients of investment and consumption.
† Estimates based on the incremental output–import ratio.

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### (e) *The dominant constraint assuming a growth rate of 5.5% p.a.*

The equations and parameter estimates in the previous section are now used to calculate the saving–investment gap and the export–import gap for each year of the Six-Year Plan. First we assume a growth rate of 5.5%, which is a continuation of the past trend. Then in the next section we assume a growth rate of 7.5%, which is the target rate set by the Six-Year Plan, and our findings are compared with the discussion of future resource requirements contained in the Plan.

The year-by-year estimates of the 'two-gaps' assuming a 5.5% annual growth rate are shown in Table 1. The investment ratio is 0.165 assuming a capital–output ratio of 3. There are two estimates of the export–import gap: one based on the use of the estimated import coefficients of investment and consumption; the other based on the use of the incremental output–import ratio. A value for $m$ of 0.29 implies an import ratio of 0.19. The use of the import coefficients gives higher estimates of import requirements than the use of the incremental output–import ratio, implying a lower implicit value of $m$ in the disaggregated approach. From equation (4), in fact, we estimate a value of $m$ of 0.274 compared with the aggregate estimate of $m$ of 0.29. If we were to take an average of the two estimates it would appear that the domestic resource gap and foreign exchange gap are of roughly similar magnitude, equal to approximately £s 150 million in 1977/1978 and increasing to £s 200 million in 1982/1983, measured at 1976/1977 prices. Domestic inflation will, of course, widen the savings–investment gap in absolute terms,[11] and a rise in the price of traded goods will widen the export–import gap, barring a sufficient improvement in the terms of trade. A deterioration in the terms of trade would widen the export–import gap even more.

### (f) *The dominant constraint assuming a growth rate of 7.5% p.a.*

The 'two-gaps' associated with the growth target of 7.5% assumed by the Six-Year Plan are shown in Table 2. The investment ratio is 0.225 assuming a capital–output ratio of 3, and the import ratio is 0.259 assuming an incremental output–import ratio of 0.29. Both gaps widen absolutely at the higher growth rate, but come closer together. The two approaches to forecasting import requirements give roughly similar results, with the disaggregated approach tending to give a slightly lower estimate. Evidently the implied value of $m$ in moving to a higher growth rate rises above the aggregate estimate of 0.29. Using equation (4), the implied value of $m$ in the disaggregated approach is 0.308. The magnitude of the two gaps in the terminal year of the Plan is roughly £s 400 million at 1976/1977 prices. Both gaps will be widened in absolute terms by inflation, and a deterioration in the

Table 2. *Estimates of the savings–investment and export–import gaps assuming a 7.5% growth of GDP, 1977/1978–1982/1983 (£s million)*

| | Base year 1976/1977 | 1977/1978 | 1978/1979 | 1979/1980 | 1980/1981 | 1981/1982 | 1982/1983 |
|---|---|---|---|---|---|---|---|
| GDP | 1822 | 1958.7 | 2105.5 | 2263.4 | 2433.2 | 2615.7 | 2811.8 |
| Savings | 155 | 172.9 | 185.3 | 198.6 | 212.9 | 228.2 | 244.7 |
| Investment | 319 | 440.7 | 473.7 | 509.3 | 547.4 | 588.5 | 632.7 |
| Savings–investment gap | 164 | 267.8 | 288.4 | 310.7 | 334.5 | 360.3 | 388.0 |
| Exports | 214 | 228.2 | 243.3 | 259.9 | 276.5 | 294.9 | 314.4 |
| Imports* | 378 | 493.5 | 532.1 | 573.6 | 618.3 | 666.3 | 718.0 |
| Export–import gap | 164 | 265.3 | 288.8 | 313.7 | 341.8 | 371.4 | 403.6 |
| Exports | 214 | 228.2 | 243.3 | 259.9 | 276.5 | 294.9 | 314.4 |
| Imports† | 378 | 506.5 | 544.5 | 585.3 | 629.2 | 676.4 | 727.1 |
| Export–import gap | 164 | 278.3 | 301.2 | 325.4 | 352.7 | 381.5 | 412.7 |

* Estimates based on the import coefficients of investment and consumption.
† Estimates based on the incremental output–import ratio.

terms of trade will widen the export–import gap further.

## 4. A COMPARISON WITH THE SIX-YEAR PLAN PROJECTIONS

How do the results above compare with the projections of the Six-Year Plan which uses a target growth rate of 7.5%? The Plan does not provide an explicit projection of savings for the years considered, but it does assume that the average propensity to save will rise from 8.5% in the base year to 13% in the terminal year implying a marginal propensity to save over the Plan period of 21%. This is expected to permit domestic resources to finance 48% of total gross investment, leaving 52% to be financed from external resources. Planned investment over the whole period, excluding stocks, and assuming an incremental capital–output ratio of 3, is £s 2670 million. Anticipated saving, at 48% of planned investment, would amount to £s 1281 million. Since our estimate of cumulative saving of £s 1243 million is almost the same as the Plan estimate, despite the assumption of a *lower* average propensity to save, the savings and income projections of the Plan must be inconsistent. The inconsistency is easily seen by applying the Plan's assumed savings propensities to the target levels of income, which would give a much higher level of forecast saving than that anticipated by the Plan. In effect, the Plan seems to assume the same savings propensity as that used here.

Our estimate of cumulative investment requirements is £s 3192 million, but this includes additions to stocks. Making a 9% allowance for increases in stocks (as the Plan does) gives a figure for cumulative investment requirements of £s 2905 million, which is above the Plan estimate even though we use the same assumptions. Again the figures in the Plan seem inconsistent. The inconsistency results from the fact that, as can be seen from Table 3 in Chapter 3 of the Plan, the capital–output ratio applied to the increase in output is not always the specified ratio of 3. Our estimate, therefore, is that domestic saving will finance only 43% of investment requirements (net of stock increases) and that the absolute magnitude of the cumulative savings–investment gap at constant prices is £s 1662 million net of stock increases and £s 1949 million in total, compared with the Plan estimate of £s 1389 million. In our view, the Plan underestimates the real magnitude of the domestic resource gap.

Export earnings are assumed by the Plan to grow at 11% p.a., giving a cumulative total over the Plan period of £s 1881 million. This compares with our assumption of 6.4% growth, which gives a cumulative total of £s 1617 million (at 1976/1977 prices). Although the Plan expects sugar to emerge as a new export item, it is not enough in our view to justify such an optimistic growth rate.

On the other hand, the assumed import growth rate of 10% is close to our own estimate of 11%. Cumulative import requirements are estimated by the Plan to total £s 3210 million.

Table 3. *Our projections and the Plan projections compared: cumulative totals* 1977/1978–1982/1983 *(£s million)*

| | Plan | Our projections | |
|---|---|---|---|
| Savings | 1281 | 1243 | |
| Investment requirements | 2670 | 3192 | (2905*) |
| Savings–investment gap | 1389 | 1949 | (1662*) |
| Exports | 1881 | 1617 | |
| Import requirements | 3210 | 3602† | |
| | | 3669‡ | |
| Export–import gap | 1329 | 1985† | |
| | | 2052‡ | |

* Excluding additions to stock.
† Projection based on import coefficients of investment and consumption.
‡ Projection based on the aggregate incremental output–import ratio.

Our calculations of import requirements are £s 3602 million using the import coefficient estimates, and £s 3669 million using the aggregate incremental output–import ratio. The Plan therefore estimates an export–import gap of £s 1329 million, while our calculations suggest an export–import gap of approx. £s 2000 million. A summary of the Plan projections and our estimates of the 'two gaps' is given in Table 3.

It can be seen that the Plan envisages a cumulative domestic resource gap and trade gap of roughly equal magnitude, with the domestic resource gap just dominant. Our calculations support the Plan conclusion that the 'two gaps' are of roughly equal magnitude. On the other hand, it appears that the absolute magnitude of both gaps (even at constant 1976 prices) has been underestimated. We estimate that the domestic resource gap and trade gap could both be nearly 50% higher than the levels estimated by the Plan. The Plan underestimates investment requirements relative to saving, and overestimates export earnings relative to import requirements. Foreign resource inflows which were only sufficient to cover the dominant gap envisaged by the Plan would barely finance a growth rate of 5.5% (see the calculations in Table 1).

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## NOTES

1. The classic studies have been: H. Chenery and M. Bruno, 'Development alternatives in an open economy: the case of Israel', *Economic Journal* (March 1962); I. Adelman and H. Chenery, 'Foreign aid and economic development: the case of Greece', *Review of Economics and Statistics* (February 1966); H. Chenery and A. MacEwan, 'Optimal patterns of growth and aid: the case of Pakistan', *Pakistan Development Review* (Summer 1966); H. Chenery and A. Strout, 'Foreign assistance and economic development', *American Economic Review* (September 1966); and H. Chenery and P. Eckstein, 'Development alternatives for Latin America', *Journal of Political Economy* (Supplement) (August 1970).

2. See *The Six Year Plan of Economic and Social Development* 1977/78–1982/83 (Khartoum: Ministry of Planning, 1977).

3. The limitations and criticisms of dual-gap analysis are well-voiced in H. Bruton, 'The two gap approach to aid and development', *American Economic Review* (June 1966); and V. Joshi, 'Saving and foreign exchange constraints', in P. Streeten (ed.), *Unfashionable Economics* (London: Weidenfeld & Nicolson, 1970).

4. See, for example, A. P. Thirlwall, *Growth and Development: With Special Reference to Developing Economies*, 2nd ed. (London: Macmillan, 1978).

5. Historical data were obtained from Department of Statistics, *National Income Accounts*, various issues.

6. For example, see J. G. Williamson, 'Personal saving in developing nations: an intertemporal cross section from Asia', *Economic Record* (June 1968); and H. Houthakker, 'On some determinants of saving in the developed and underdeveloped countries', in E. A. G. Robinson (ed.), *Problems of Economic Development* (London: Macmillan, 1965).

7. Following the work of A. Maizels, *Exports and Economic Growth in Developing Countries* (London: Cambridge University Press, 1968); and J. K. Lee, 'Exports and the propensity to save in LDCs', *Economic Journal* (June 1971).

8. The constant term of £s 8 million compares with the average level of real income over the period of £s 653 million.

9. Exports may also have an import content. Including exports ($X$) in the import function, however, produced a very low and insignificant coefficient on $X$ and hardly changed the coefficient estimates attached to $C$ and $I$. The estimated equation is:

$$M = -21.85 + 0.134(C) + 0.610(I) + 0.034(X),$$
$$\qquad\qquad (0.078) \quad (0.380) \quad (0.300)$$
$$R^2 = 0.969.$$

10. Relating exports to a weighted index of GDP for major import countries ($PW$) and the relative price of exports ($P_x/PXW$) gave the following result:

$$\log X = 93.01 + 0.197 \log(QW) - 35.385 \log(P_x/PXW),$$
$$\qquad\qquad (0.097) \qquad\quad (61.1)$$
$$R^2 = 0.303.$$

Unless the independent variables can be predicted with some confidence, however, the equation is not of much use for forecasting purposes even if the explanatory power of the function is high.

11. This is a purely arithmetic point that a rate of growth applied to two unequal magnitudes will widen the absolute inequality.

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# Brick Manufacturing in Colombia : A Case Study of Alternative Technologies

MARY ANN BAILY*

**Summary.** – There is systematic variation in size and capital-intensity across firms in LDC manufacturing industries, variation which is greater than that observed in advanced countries (DCs). This paper examines the hypothesis that the pattern results from diffusion of superior modern technology which is proceeding at a slower rate in LDCs than in DCs. Evidence from the Colombian brick industry is presented which suggests that slow diffusion is not a sufficient explanation.

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## 1. INTRODUCTION

In both advanced and less developed countries alike, there are systematic variations across firms in choice of technique and size of firm, but in LDCs the dispersion of firms is much more pronounced. Large, modern, capital-intensive firms coexist with small, labour-intensive firms using very old techniques.

In the development economics literature, this phenomenon has been stylized as 'dualism': manufacturing is composed of a 'modern' sector and a 'craft' or 'traditional' sector. Explanations have been proposed for the existance of dualism, and its gradual disappearance over time has been seen as a key feature of the development process.[1] Dualism *is* only a stylization since case studies of industries show there is actually a spectrum of techniques. Nevertheless, there is clearly a need for a theory to explain why the dispersion of firms occurs at all, and why the extremes of size and capital-intensity are so much more marked in LDCs.

One explanation is in terms of a process of diffusion. In any country, firms do not instantly adopt newly developed technology for two reasons:

(1) Information about it must spread throughout the industry.
(2) The technology is usually embodied in new capital goods; it is adopted only when the replacement of existing equipment becomes profitable.[2]

In a developing country, one might expect the diffusion process to take place more slowly, which would explain the bigger spread in the technology observed in place. Information, which comes from technologically sophisticated countries, is likely to spread more slowly. Managers in LDCs may be less effective profit-maximizers and therefore slower to recognize the value of new technology. Imperfections in input and output markets occur frequently in LDCs; these may weaken the cost advantage of the superior modern technology. The replacement cycle may thus be slowed and the traditional technology may survive longer in spite of its lower productivity.

In considering the empirical validity of this explanation, one must bear in mind certain key elements in the diffusion model. The newer technology dominates the old and the productivity advantage is greater at higher capital–labour ratios. Scale economies are more important in newer technologies.

Therefore, the industry structure is changing over time in the direction of large capital-intensive firms. Since technology change continues to occur, a stationary state will not necessarily be reached, but the distribution of firms will narrow until it more closely resembles that in DCs, and traditional small labour-intensive firms will be eliminated.

From the policy standpoint, this model

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tends to support the 'modern-is-better' attitude found in many developing countries. It suggests that factor market imperfections allow obsolete technology to survive rather than (as others argue) encourage premature adoption of socially inefficient technology. It portrays the traditional sector as composed of people not smart enough to see that they are obsolete. Speeding up the diffusion process is a good thing. Efforts to provide assistance to small and medium-size firms are suspect on efficiency grounds. Any efforts to provide technology information should focus on spreading information about the superior modern technology, not on spreading information about craft technology, or looking for more productive forms of craft technology.

For many LDCs, the model is plausible, fits with casual observation, and is consistent with aggregate industry statistics. However, casual observation has often proved misleading in the past and industrial statistics can be difficult to interpret. For example, Colombian statistics show that the size composition of industry is changing over time in the direction of larger firms. However, the statistics are not very suitable for examining the composition of industry by size over time, and are likely to contain a built-in bias towards showing that result. The industrial statistics in Colombia (and in nearly all LDCs) include all of the largest and the great majority of medium-size firms but only a small fraction of the small firms. Very little information is available about the number of firms in the smaller size classes of any industry, so it is hard to know just what fraction is included in any given year. Firms generally grow over time. Some firms go out of business, and it is reasonable to think that turnover is greater among smaller firms. For both these reasons, the average size of firm in a sample will automatically grow over time unless adjustments are made for entry and exit. But it is hard to make the correct adjustment. The larger firms entering will tend to be included, but given the lack of information about small firms, it is very unlikely that small firms will be added to the sample in the right proportions to maintain a sample which accurately reflects the real size distribution of firms in the industry.

Thus, it is useful to look at a specific industry at the micro-level. The Colombian clay brick industry is an excellent choice for such a case study. The technology in operation in the industry ranges from a modern, large, capital-intensive factory to tiny artisan establishments using centuries-old techniques. In this paper, the question asked is, to what extent can the structure of this industry be explained by a diffusion process?

We conclude that the empirical evidence suggests that this explanation is not sufficient.

## 2. A BRIEF HISTORY OF BRICK TECHNOLOGY

The main processes in the production of clay bricks are the excavation and preparation of the clay, the forming and drying of the raw bricks, and the firing of the bricks in kilns. For each process, there is a variety of alternatives available, from purely manual to highly mechanized.

Until the 19th centry, production was characterized by hand-digging, natural weathering, hand-making, outdoor drying, and batch-firing in primitive kilns, either temporary structures ('open clamps') or simple permanent structures.

In the 19th century, moulds were developed which made as many as 15 bricks at once. The process (the 'soft-mud' process) was mechanized, using animal and then steam power. By the end of the century, a new alternative, the extrusion process, had been developed and was well established. In the extrusion process, instead of being moulded, the bricks were extruded as a column of clay which was then cut with a wirecutting machine.

Heated floors were first used to speed up drying. Then chamber dryers were used, in which hot air was circulated around the formed bricks. In 1845, a continuous process dryer (the tunnel dryer), was invented, although it did not become a practical alternative to the hot floor and chamber dryer until the end of the century. In the tunnel dryer, bricks moved on cars through a tunnel as warm air was passed over them.

In kilns, the important innovation was the Hoffmann kiln, invented in 1858. This kiln transformed the firing process into a continuous process. It was composed of a series of individual chambers into which bricks were loaded and unloaded. The fire was moved from chamber to chamber as the bricks in each chamber were fired.

With the 20th century came mechanization of the excavation step, with power shovels, bulldozers etc. There was a shift toward more elaborate preparation of the clay and the development of stone separation, crushing and mixing machinery. De-airing was introduced into the extrusion process. This is the removal

of air from the clay as it is being extruded in order to produce a denser, stronger product.

The tunnel kiln had been invented in 1840 but was not adapted for brickmaking until the 20th century. It, like the Hoffamnn kiln, involved a continuous firing process, but in the case of the tunnel kiln, the fire was stationary and the product moved through the kiln on cars.

Finally, mechanical methods of handling the bricks within and between processes were developed.

To summarize, there has been a substantial increase in the minimum scale of plant with the development of new technological alternatives, particularly in the case of kilns. Generally, the newer the technique, the less labour is used relative to capital in each process, and some substitution of skilled for unskilled labour has occurred. Also, for efficient operation, the tunnel kiln and tunnel dryer require skilled management of temperature controls.

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## 3. THE STRUCTURE OF THE COLOMBIAN BRICK INDUSTRY

The characterization of technology is a difficult task. Even if we are satisfied with measuring the primary inputs, the measurement of the capital input raises serious problems. Book value is a poor measure because depreciation relates much more to tax law than to the economic value of the capital. Although measures of electrical energy consumed and rated horsepower have sometimes been found to be correlated with other capital measures, the conceptual basis for expecting such a correlation is weak. Replacement cost is perhaps the best alternative, but most firms have no idea what replacement cost is or even what the original cost of their capital was. Moreover, firms are suspicious of surveys and reluctant to waste their time gathering information. Therefore, we sought a method that would capture the main alternatives but would be feasible.

After preliminary factory visits and discussion with local industry experts, the Colombian industry was divided into eight major categories of technology choice,[3] based on the major alternatives observed in the forming, drying and firing processes. (The choices are arranged here from most to least capital-intensive, within each process.)

Forming: semi-dry press process,
extrusion with de-airing
– imported process,
– Colombian adaptation,
extrusion without de-airing,
manual moulding.

Drying: artificial drying – tunnel drying,
– chamber drying,
natural drying.

Firing: continuous kiln – tunnel kiln,
– Hoffman kiln,
intermittent kiln – vertical flame (updraught),
– inverted flame (downdraught).

Table 1 shows the combinations of choices represented by the categories. A tentative specification of a representative plant was prepared for each category based on information from a small number of co-operative firms. These were used in designing the survey instrument. Brief questions on key points of the production process were included in the survey to determine what category each firm was in. The results of the survey were used to modify the original categories and plant designs. Then a single composite capital–labour ratio was computed for each of categories 2–8 from the modified plant designs. The capital figure was the approximate cost in Colombian pesos of purchasing plant and equipment new in 1975 plus the costs of construction in 1975 for kilns, drying sheds, and simple factory structures.[4] Labour was the number of full-time production workers employed per month.[5]

A capital–labour ratio could not be computed for category 1. This category consists of a single, very large-scale firm using a sophisticated capital-intensive process. Since the firm refused to co-operate it is incorporated in the analysis only to the extent that information about it is available from other sources. Although a capital–labour ratio could not be computed, there is no doubt that this category is the most capital-intensive.

Clearly the industry exhibits a range of techniques rather than a simple dualism. Nevertheless, there is a major jump in the capital–labour ratio between categories 4 and 5; in terms of the 'dualistic' stylization, this would be a reasonable division between the modern and the craft sector.

It is obvious that the capital–labour ratios are very approximate. We know that there is variation within categories but we do not have the quantitative data to say how large the variation is. Little significance can be attached to the numerical values; however, we feel that the ordering is robust. In this paper, capital-intensity is used mainly as an ordinal ranking of the categories.[6]

Table 1, combined with the historical devel-

Table 1. *Categories of technology choice*

| | Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 'Modern' sector | | | | 'Craft' sector | | | |
| Process | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Forming | Semi-dry press process | Extrusion with de-airing: imported process | Extrusion with de-airing: imported process | Extrusion with de-airing: imported process | Extrusion with de-airing: imported process | Extrusion with de-airing: Colombian adaptation | Extrusion without de-airing | Manual moulding |
| Drying | Tunnel drying | Combination* of tunnel and natural drying | Combination* of chamber and natural drying | Natural drying | Natural drying | Natural drying | Natural drying | Natural drying |
| Firing | Tunnel kiln | Tunnel kiln | Hoffman kiln | Hoffman kiln | Intermittent kiln | Intermittent kiln | Intermit-tent kiln | Intermittent kiln |
| Composite capital/ labour ratio | Unavailable | 872.1 | 512.9 | 410.3 | 77.3 | 45.1 | 25.8 | 7.4 |

* Only the single firm in category 1 dries all of its output artificially.

Table 2.

| Category | Kendal rank-order correlation coefficient (Kendall's tau) | Significance level |
|---|---|---|
| Vs size measured by employment | −0.5087 | 0.001 |
| Vs size measured by value of capacity output | −0.5944 | 0.001 |

opment of the technology, shows that, as the diffusion model assumes, capital-intensity and 'modernity' of the technology generally give the same ordering of categories. There is one special case. Category 6 uses a Colombian adaptation of imported technology; foreign machinery has been reduced in size and copied for local manufacture. The original technology has been known for a long time; the adaptation began in the very early 1970s. More will be said about the significance of this later.

Size of firm was not used in the determination of the categories. However, in the sample, size of firm proved to be strongly correlated with category and therefore with capital-intensity and modernity, as the diffusion model assumes. Two measures of size were used: total employment and value of capacity output.[7] Quantitative information was available for 47 firms in categories 2–8. The correlation between the ranking by size and the ranking by capital-intensity (as measured by category) is given in Table 2.[8]

## 4. FACTOR MARKET STRUCTURE

The 'stylized fact' about factor markets in the LDC manufacturing sector is: large, modern firms have higher wage/rental ratios than small traditional firms.

In the case of wages, this is based primarily on aggregate data which shows that the average wage increases with size of firm. This may represent different wages across firms for the same type of labour caused by a market imperfection (tied, for example, to government labour legislation) which applies differently across firms according to their choice of technology, or according to their size. Or it may result from a difference in the composition of the labour force across firms; worker characteristics, such as education and experience may vary systematically with technology or size of firm.

In the case of the rental rate, little data is available but the rental rate may also vary with choice of technology (e.g. because of favourable borrowing terms for the purchase of modern capital) or with size of firm. In another paper[9] we give a detailed discussion of the structure of Colombian factor markets, in general and in the brick industry specifically. We summarize it here.

The survey yielded consistent labour force data for 42 firms. Regressions were run relating the difference between a firm's average production wage and the average for the sample to variables for education, experience, turnover rate, degree of unionization, size of firm and geographical region, in linear and log–linear form. The regressions were also run with dummy variables for the individual categories.

The results indicate that wage rates increase with size of firm as measured by capacity output. Both the regression results and the evidence of local brick experts indicate that the wage differential cannot be explained by differences in education, experience or stability of the labour force across firms. The dummy variables for category were generally not significant, suggesting that the differential is not related to technology choice *per se*.

Unionization was not significant in the regressions; the brick industry is not heavily unionized. However, evidence from the interviews and other qualitative evidence suggest that this is probably a major cause of the relationship between size and average wage. Labour legislation in Colombia specifically discriminates among firms on the basis of size; this reinforces the usual arguments about why the threat of unionization is more important to larger firms.

It was difficult to obtain direct quantitative data on capital costs for individual firms. However, a study of the lending policies of the major sources of industrial credit leads to the conclusion that capital access does differ across firms. An elaborate system of capital market controls gives wide scope for the use of non-economic factors in credit allocation. Capital access may depend to some extent on the nature of a project.[10] But much more important to capital access are characteristics of the borrower such as family background, social position and educational background. The survey showed that the larger, more capital-

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intensive firms had entrepreneurs with the characteristics associated with better capital access.

In sum, our evidence indicates that there is the predicted association between size, modernity and capital-intensity, and a higher wage/rental ratio. The association is not directly related to the type of technology chosen by the firm, but to other characteristics of the firm and its owners: most importantly, size of firm as measured by output, and family background, social position and educational background of owners.

## 5. RELATIVE PRODUCTIVITY BY CATEGORY

The diffusion model assumes that modern technology dominates craft technology, i.e. is

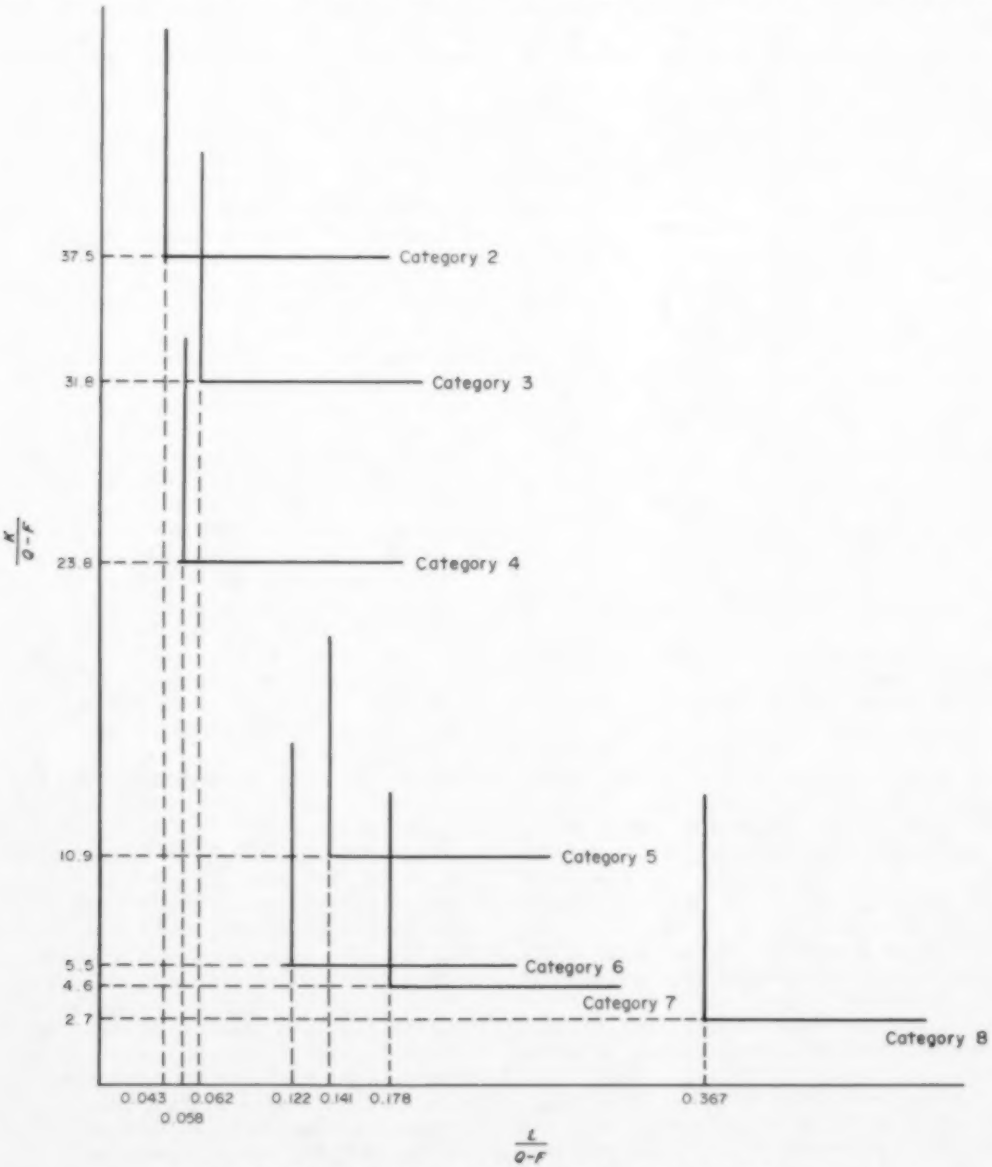


Figure 1. *Fixed capital and labour coefficients (forming, drying and firing).*
Footnotes at foot of page 207.

more efficient in the use of both capital and labour. This assumption has been much debated in the development literature. The debate is complicated by the fact that the production function is usually presented in terms of two homogeneous factors of production, labour and capital, while it is recognized that modern technology often requires a different labour skill mix as well as a different kind of entrepreneur. In the brick industry, there are also differences in the kind and amount of fuel per unit of output.

One approach would be to compare the different techniques directly, valuing input and output characteristics at the prices faced by the firms and at appropriate shadow prices. This must be done using not only the technical data on machine capacities, staffing ratios etc. but data on the actual operations of Colombian firms; machines and people may operate differently than expected under everyday conditions in a developing country.[11]

One aspect of this is the quantity and quality of the managerial input, which is hard to measure but very important.[12] The high profit rates which Colombian accountants believe characterize large modern firms may be evidence for the greater productivity of the modern technology – or they may represent rents to scarce entrepreneurial skills and/or rents to the entrepreneurial characteristics which give favourable access to investment funds.

We had originally hoped to get microdata of sufficient quality to enable us to tacke the problem directly, but this goes to the heart of the most sensitive issue to the businessman, his

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Notes: Some important reasons why the isoquants shown are very approximate:
1. As noted earlier, the pattern of shift-work did not differ across firms within categories, but there *was* variation in the number of firings of the kilns per unit of time and the intensity of machinery use within a shift, across firms as well as across categories. Also, utilization rates varied for the same firm at different points in time.
2. There were variations in fuel efficiency, across firms within the same category, and in the same firm at different points in time. Fuel use varies with:
(a) the content of sand and other substances in the clay;
(b) the moisture content of the product at the end of the drying process;
(This means that fuel use varies with the weather, since both artificial and natural drying are less efficient in wet weather; in the wet seasons, the kiln does some of the drying. Also, minor variations in construction of the drying sheds can affect drying efficiency.)
(c) the altitude;
(d) the design of the kiln, within a particular kiln type.
(Minor variations in the structure of the air vents etc., can have major effects on fuel efficiency.)
3. Not all inputs were included. For example, the labour coefficient includes only production labour, not managerial labour. Land is not included, either land for the factory or the land which comprises the clay reserves. It is virtually impossible to value the land in a consistent meaningful way, because typically the brick factories (of various sizes and categories, side-by-side) are located on land on the outskirts of the major cities – land which is unsuitable for agriculture and whose value is expected to increase as the city grows. In many cases, removal of the clay makes the land more suitable for eventual development.

Some specific points on a comparison of categories 3 and 4, and categories 5 and 6:

Category 3 is dominated by category 4, given the coefficients shown. The difference between these two categories is in the use of artificial drying. Category 3 uses more fixed capital (in the form of the cost of the artificial dryer) and more fuel, but it uses less land and less working capital, since the drying time is shortened. The change in the value of work in progress between the two categories is at most about 5% of the difference in fixed capital cost between the two categories, which is a negligible addition to the capital cost. The difference in land per thousands of pesos of $Q - F$ (value of output less value of fuel) is substantial: 5.7 $mt^2$. However, to balance the Col. $8000 difference in fixed capital investment, the land would have to cost about Col. $1400/$mt^2$, or Col. $14,000,000/ which is a very substantial sum indeed (over US $400,000/acre) especially when it is considered that the land will appreciate in value while the dryer will depreciate. Thus the difference in land and working capital costs is unlikely to be sufficient to justify the increased fixed capital investment.

Category 5 seems to be dominated by category 6. The main difference between these two categories is in the use of a simple domestic machine in preparation and forming in category 6 compared to larger and more expensive imported machinery in category 5. The utilization rate has been assumed to be rather low in category 5 (about 60%) on the grounds that this is representative, while the utilization rate in category $F$ has been assumed to be 100%. To make a rough correction for this, if it is assumed that factors can be adjusted proportionally to give 100% utilization in both categories, then the capital coefficient is very close to that in category 6. (The capital coefficient for preparation and forming is still somewhat higher in category 5 than in category 6, but this is offset by the lower coefficient for firing.) Thus it seems that an important aspect of the Colombian capital is the fact that it enables firms to produce at lower scales of production without having underutilized capacity.

profitability, and we were unsuccessful. We did get enough evidence to convince us that the validity of the assumption of differential productivity is by no means obvious.

Some of this evidence is summarized in Figure 1. The value of output less the value of fuel (at actual domestic prices) was computed by category from the plant designs and used as a rough measure of output. The figure shows production labour and fixed capital per unit of output for categories 2–8; this gives an approximation of a unit isoquant (at the scale of operation assumed for the representative plant in that category, i.e. incorporating any economies of scale that may exist). The plant designs incorporate a host of approximating assumptions, since there were substantial variations in the efficiency of firms within categories in their use of the same basic technique: variations from firm to firm, and for the same firm over time. (The notes to the figure contain further discussion of some of the more important aspects of this.) The figure is far from conclusive but it suggests that neither the craft nor the modern technology clearly dominates. With due allowance for data errors, the alternative techniques appear to lie approximately on an isoquant.

## 6. EVOLUTION OF THE INDUSTRY OVER TIME

Although we cannot resolve the relative productivity question, we can see if the industry is evolving over time as the diffusion model predicts.

If the new technology dominates the old, new firms should be large, modern and capital-intensive. Old firms should gradually become so as expected profits from the change dominate the costs. Some new small-scale firms may be set up with cheap second-hand capital goods discarded by the modernizing firms, since if there is any market in second-hand capital goods, their prices must adjust until the old capital is competitive with the new. This phenomenon can persist until the old capital

Table 3.

| Current category | Kendall correlation coefficient | Significance level |
|---|---|---|
| Vs age of firm | −0.2167 | 0.024 |
| Vs employment at end of first year | −0.3550 | 0.002 |
| **Age of firm** | **Pearson correlation coefficient*** | **Significance level** |
| Vs current size measured by employment | 0.3082 | 0.018 |
| Vs current size measured by capacity | 0.1791 | 0.114 |

Changes in category

| Category | No. of firms | No. of firms known to have started in same category | No. of firms for whom initial category unknown | Others | No. of firms set up in 1970s and category |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | One firm started in category 4 | 0 |
| 2 | 1 | 1 | 0 | 0 | 0 |
| 3† | 4 | 0 | 2 | Two firms started in category 4 | 2‡ |
| 4 | 7 | 5 | 1 | One firm started in category 5 | 3 |
| 5 | 9 | 6 | 3 | 0 | 5 |
| 6 | 4 | 3 | 1 | 0 | 3 |
| 7 | 10 | 6 | 4 | 0 | 3 |
| 8 | 12 | 12 | 0 | 0 | 8 |
| Total | 48 | 33 | 11 | 4 | 24 |

* Pearson correlation coefficient can be used because age and size are both interval-level variables.
† Categories 3 and 4 are identical except that category 3 firms have chamber dryers which may be used to dry part of the output. All the firms acquired their dryers after the start of the firm and at about the same time (the early 1970s), so all moved from category 4 to category 3.
‡ Both started in category 4.

wears out or is unprofitable to operate even at a zero price (e.g. because of high running costs).

Although historical information was difficult to obtain, the survey provided data on the age of the firm, the size of the labour force at the end of the first year of operation and the ages of the major items of capital equipment, as well as whether they were bought new or second-hand.

Table 3 shows that the more modern, larger firms tend to be older, not younger, although the correlations are not strong. More direct evidence is provided by looking at changes in category and size of individual firms over time. The data were sufficient to identify an initial category for 37 of the 48 firms (the remaining 11 were the oldest firms; all date from 1957 or earlier). Categories 3 and 4 are identical except that category 3 firms have chamber dryers which may be used to dry part of the output. All of the firms in this category acquired their dryers after the start of the firm and at about the same time (the early 1970s), so all moved from category 4 to category 3 (and two firms may have moved from some other category since their initial category could not be determined). However, with that exception, Table 3 shows that the general picture is not one of firms changing categories to become more modern. Of course, for 11 firms, nearly one-fourth of the sample, we do not know the initial category. But eight of the 11 are still in categories 5–8, the 'craft' sector, even though they are among the oldest firms in the sample.

One-half of the sample consists of firms established during the construction boom in the early 1970s. All of these firms are still in the same category they started in except the two which moved from category 4 to category 3. The distribution of firms by category in this sub-group is not that different from the distribution of firms in the sample as a whole, contrary to the prediction that only modern firms would be set up.

The survey showed that firms generally do grow over time. The change in the labour force is biased downward as an indicator of change in firm size, because of a severe slump in demand at the time of the survey and also because the capital–labour ratio and the output–labour ratio are likely to increase with size. Nevertheless employment had increased for 36 of the firms and decreased for only seven (unknown for five). Capital equipment had generally been added over time. However, Table 3 suggests that growth comes primarily within the same category or with a movement to the next category only.

The age of the firm can be ambiguous. Many firms had changed their form of legal organization and their shareholders over time and it was not always clear what date to take for the founding of *the* company. Thus it is useful to look at the major items of capital equipment to see if there is a pattern of introduction of technology of time. If the age of the equipment is uniformly older, the higher the category number, then one could argue that coexistence of the categories represents the phenomenon of gradual adjustment by investment in the new technology. Modernizing firms are selling off their outmoded equipment to other firms but the category will disappear when this equipment wears out.

Table 4 gives data on the machinery used in the preparation and forming processes in those firms which use machinery. Table 4 shows that the importance of second-hand machinery does increase as the modernity of the category decreases. However, the introduction in category 6 of the Colombian adaptation of the type of machinery used in category 5 suggests that the technology represented by the second-hand machinery is not obsolete. Although the average age of machinery in category 7 is high, the standard deviations are large and there is some relatively new machinery used in the category.

Table 5 shows the average age of the kilns in the sample. The kilns vary widely in age and there does not seem to be any clear pattern between age and modernity of kiln type.

## 7. CONCLUSIONS

The evidence does not support the hypothesis that the brick industry is tending toward a structure in which most firms are modern, large and capital-intensive, and the traditional labour-intensive categories are eliminated. Although the direct evidence on relative productivity of the categories is inadequate, the indirect evidence indicates that it is worthwhile to set up new firms with craft technology. It is interesting that in the construction boom of the early 1970s, the industry seemed to expand across the board. The largest, most technologically sophisticated brick factory in the country (in category 1) was built. Category 3 was created, with the introduction of artificial chamber dryers for the first time in Colombia. But this was also the period of introduction of an adaptation of imported technology, the Colombian-produced de-airing extruder, which enabled firms to be smaller in scale, and less capital-

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Table 4. *Preparation and forming machinery*

| Type of machinery | Technology category | No. of firms in category with this type of machine | Total No. of machines | No. of machines bought second-hand | Age of machines | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Mean | Standard deviation | Minimum | Maximum |
| Preparation machinery | 1 | NA | | | | | | |
| | 2 | 1 | 5 | 0 | 21.0 | 0 | 21 | 21 |
| | 3 | 4 | 23 | 0 | 9.4 | 7.9 | 4 | 30 |
| | 4 | 7 | 20 | 10 | 15.5 | 7.8 | 4 | 28 |
| | 5 | 6 | 17 | 5 | 9.5 | 9.3 | 2 | 26 |
| | 6 | 3 | 4 | 4 | 18.0 | 4.0 | 12 | 20 |
| | 7 | 3 | 6 | 2 | 21.3 | 18.9 | 4 | 48 |
| | 8 | 4 | 4 | 3 | 15.0 | 7.8 | 4 | 21 |
| Extruder without de-airing chamber | 1 | NA | | | | | | |
| | 2 | 0 | | | | | | |
| | 3 | 0 | | | | | | |
| | 4 | 0 | | | | | | |
| | 5 | 0 | | | | | | |
| | 6 | 0 | | | | | | |
| | 7 | 9 | 11 | 10 | 21.9 | 20.3 | 1 | 51 |
| | 8 | 0 | | | | | | |
| Extruder with de-airing chamber | 1 | NA | | | | | | |
| | 2 | 1 | 1 | 0 | 21.0 | 0 | 21 | 21 |
| | 3 | 4 | 7 | 0 | 13.9 | 10.3 | 4 | 30 |
| | 4 | 7 | 7 | 2 | 13.7 | 5.3 | 5 | 21 |
| | 5 | 9 | 10 | 2 | 9.3 | 7.2 | 4 | 26 |
| | 6 | 5 | 5 | 3 | 13.4 | 5.5 | 6 | 21 |
| | 7 | 0 | | | | | | |
| | 8 | 0 | | | | | | |
| Manual cutters | 1 | NA | | | | | | |
| | 2 | 0 | | | | | | |
| | 3 | 1 | 1 | 1 | 29.0 | 0 | 29 | 29 |
| | 4 | 0 | | | | | | |
| | 5 | 1 | 1 | 0 | 6.0 | 0 | 6 | 6 |
| | 6 | 4 | 4 | 1 | 9.5 | 3.0 | 6 | 12 |
| | 7 | 8 | 10 | 9 | 20.6 | 18.5 | 3 | 51 |
| | 8 | 0 | | | | | | |
| Automatic cutter | 1 | NA | | | | | | |
| | 2 | 1 | 1 | 0 | 21.0 | 0 | 21 | 21 |
| | 3 | 4 | 7 | 0 | 8.1 | 6.0 | 4 | 20 |
| | 4 | 7 | 7 | 2 | 12.4 | 4.9 | 5 | 21 |
| | 5 | 9 | 9 | 2 | 7.9 | 4.4 | 4 | 16 |
| | 6 | 0 | | | | | | |
| | 7 | 0 | | | | | | |
| | 8 | 0 | | | | | | |

NA = not available.

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Table 5. *Kilns*

| Type of kiln | Age of kilns* | | | | | Capacity in common brick volume equivalents† | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total No. | Mean | Standard deviation | Minimum | Maximum | Total No. | Mean | Standard deviation | Minimum | Maximum |
| Intermittent (vertical flame) | 102 | 11.8 | 11.1 | 0 | 46 | 101 | 40,925 | 21,339 | 6000 | 86,100 |
| Intermittent (inverted flame) | 26 | 26.7 | 15.6 | 1 | 49 | 18 | 47,797 | 22,506 | 20,000 | 84,060 |
| Hoffmann | 16 | 18.7 | 13.1 | 5 | 56 | 14 | 286,106 | 127,881 | 147,600 | 508,096 |
| Tunnel‡ | 1 | 19 | 0 | 19 | 19 | 1 | 1,300,000 | 0 | 1,300,000 | 1,300,000 |

* Based on data for 148 kilns.
† Based on data for 137 kilns.
‡ Quantitative data available only for kiln in category 2. Tunnel kiln in category 1 is known to be newer and larger.

intensive. In addition, there was a great expansion in the number of tiny artisan firms which use technology even simpler than the simplest craft technology discussed here.

The diffusion model is not a good description of this industry. The structure to this author looks more like the long-term coexistence of a set of representative firms with little tendency for the dispersion to become narrower.

In another paper (Baily, 1979: see note 9) we have argued that the empirical evidence is consistent with a model in which there is only one industry production function, but factor market imperfections create an environment in which profit-maximizing entrepreneurs face different constraints and therefore choose to build firms in the different categories (i.e. choose different points on the production function).

The input market imperfections, which can to a great extent be traced to government policies, have existed for a long time and show little tendency to change (although the whole wage structure is moving upward over time). Thus the industry is likely to continue to develop with a structure of parallel lines of entrepreneurs who never meet. The individual categories may change over time, but the coexsistence of different categories is not tending to be eliminated.

The evidence presented is for only one industry, but the conclusions probably apply more generally. The coexistence of widely different techniques of production is characteristic of other industries. The input market imperfections are not unique to the brick industry, but operate throughout the economy. Therefore it is likely that the results would be duplicated in other industries.

The analysis suggests that modern may not be better. Although it is hard to measure productivity directly, what data there is suggests that the craft technology is not necessarily dominated, and we know that in addition to capital, unskilled labour and fuel (which are incorporated in Figure 1), modern technology does tend to use more of other factors that are in short supply such as managerial labour. Since the market imperfections are such that the wage/rental ratio that produces the large capital-intensive modern-style firm is farther from the social opportunity cost wage/rental ratios that for the smaller firms, perhaps the 'right' industry structure would eliminate the large firms rather than the small firms.

## NOTES

1. See, for example, R. Nelson, T. P. Schultz and R. L. Slighton, *Structural Change in a Developing Economy* (Princeton, NJ: Princeton University Press, 1971), Chap. 4.

2. See W. G. Salter, *Productivity and Technical Change*, 2nd ed. (London: Cambridge University Press, 1969), for further discussion.

3. There was an additional category of tiny artisan establishments using temporary kilns (open clamp kilns) which we have not included in the study because it was impossible to get any survey data on them.

4. Since the more capital-intensive categories tend to use more imported machinery and historically the Colombian exchange rate has generally been overvalued, the use of social opportunity cost prices instead of peso prices would not change the order of the categories and would increase the dispersion of the capital-intensities.

5. The pattern of shift-work did not differ across firms within categories. There *was* variation in the number of firings of the kilns per unit of time and the intensity of machinery use within a shift, across firms and across categories The composite capital–labour ratio for the category was adjusted in a rough way to reflect the pattern of utilization that was representative of the category operating at capacity as defined in note 7. In other words, since the capital figure is a stock figure and the labour figure is number of full-time workers per month (hours per month per full-time worker did not vary across firms) the composite ratio implicitly incorporates the choice of capital utilization rates as well as size of capital stock.

Further details of the data and representative plant designs can be obtained in M. A. Baily, 'Technology choice in the brick and men's leather shoe industries in Colombia', final report to Agency for International Development, Contract No. AID/otr C-1326 (1977), or by request to author.

6. Also, we should note that by specifying the industry narrowly, product heterogeneity was greatly lessened but not eliminated. Within the clay brick industry, there are different products whose characteristics are related to variations in choice of technology. However the products are much closer substitutes than in broader industry classifications and no technology category produces a product which has no close substitute produced by some other category.

7. Capacity output was defined as the value of output that the firm would be willing and able to produce, on a long-term basis, with no more than a 5% additional expenditure on plant and equipment, and with as many additional workers as would be needed (assuming that they could be hired at the current

wage rate, and that all output could be sold at current prices). Since the industry was experiencing an unanticipated slump, which was having uneven effects across the industry, it is felt that capacity output is the best measure of size of firm available.

8. Kendall's tau is used as a measure of correlation because it requires only that the two variables be at least ordinal in scale and numeric in type; it does not depend on the normal distribution. The Spearman rank-order correlation coefficient could also have been used since there is no fixed rule about selecting one over the other. See N. H. Nie, C. H. Hull, J. G. Jenkins, K. Steinbrenner and D. H. Bent, *Statistical Package for the Social Sciences*, 2nd ed. (New York: McGraw-Hill, 1970), pp. 288–290, for a discussion of these two statisistical measures.

9. M. A. Baily, 'Factor market structure and technology choice in the Colombian brick industry', *Journal of Development Economics*, Vol. 6 (1979), pp. 573–589.

10. Formal credit lines generally require the security of a machine or building and thus to some extent encourage the use of capital relative to labour. Credit terms tend to be better for imported machinery than for domestic machinery, since the former comes from large international companies with favourable access to capital themselves, and the latter is generally made in small Colombian workshops, which have poor access to capital. Of course any lender will be interested in the ability of the borrower to repay the loan, which gives him an interest in the profitability of the project.

11. For example, we found evidence of significant variation in the productivity of equipment as used in Colombia compared to the original models in foreign countries, particularly in the more sophisticated categories. Minor differences in construction and operation techniques led to lower efficiency in the Hoffmann and tunnel kilns. None of the chamber dryers in the sample worked as well as they had been expected to, and several did not function at all.

12. The quantitative data on labour force composition showed that while production workers hardly differed at all in skill level (being all relatively unskilled), the managerial staff tended to be better educated in the more modern categories. There was qualitative evidence that the more modern the firm in technology, the more sophisticated the entrepreneurs.

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# Comment on Isenman, 'Basic Needs: The Case of Sri Lanka'

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Isenman's article, 'Basic needs: the case of Sri Lanka' [*World Development*, Vol. 8, No. 3 (March 1980)], clearly points out the interaction of social policies and economic growth and for that it is to be commended. However, Isenman goes too far in claiming that social programmes can by themselves lead to 'striking progress in the underlying social objectives of the economic development process'. The experience of Sri Lanka is to my mind more complicated than that.[1]

First of all Isenman's definition of basic needs is personal. Basic needs are allegedly not the same thing as equality of income distribution; the unemployed apparently do not represent a basic-needs problem. A basic-needs approach, however, emphasizes increasing human capital, productivity and incomes of the poor.

Others may, however, feel that employment is a basic need, or, as the ILO put it, 'freely chosen employment enters into a basic-needs policy both as a means and as an end'.[2] Furthermore calorie consumption, an indispensable social indicator, largely reflects household income and expenditure. In a poor country with a low growth rate any reasonable nutritional target is likely to require perhaps not total equality of income distribution but increasing equality of income distribution.

Isenman accepts that Sri Lanka is a poor country. Presumably, therefore, one of the underlying social objectives of Sri Lanka's economic development should be to reduce or eliminate poverty. Basic-needs satisfaction, as expressed by levels of social indicators, gives us a measure of poverty. Clearly conditions of good health and adequate nutrition reflect less poverty than ill-health and undernourishment. But social indicators can tell us less about the generation and transmission of poverty. For this reason the ILO felt that 'satisfaction of basic needs cannot be achieved without . . . access to the use of productive resources by the lowest income group'.[3]

In Sri Lanka it would then be legitimate to ask whether widespread health, education and food programmes have themselves generated a more equal distribution of income, whether they can be expected to do so in the future (intergenerationally) and whether other steps have been taken to ensure the access of the poor to productive assets.

On the basis of Alailima's work on the incidence of taxation and the distribution of the benefits of government expenditures by income group, Isenman concludes that service and subsidy programmes have had a significant equalizing effect on incomes. This would be so if one adds to personal income the cost of providing services enjoyed, as in Alailima's study. However, if instead one asks whether widespread education programmes in the 1950s and 1960s are now producing a more equal distribution of earnings in the 1970s and 1980s the answer can well be negative.

For this there are a number of reasons. Firstly the children of the poor still receive considerably less education that the children of the rich.[5] Secondly they receive a lower quality of education. Thirdly, as Isenman points out, education helps those with access to new technologies to benefit from them; in which case it can hardly benefit the landless. Fourthly, although income differences between levels of education have narrowed, income differences between occupations have not narrowed. The starting wage of a government clerk was 3.2 times that of an agricultural labour in 1953 and 3.1 times in 1973.[6]

Improved health and nutrition can help the poor man work harder. Food subsidies may have encouraged the landless to migrate to semi-jungle areas and bring barren land into productive use. But the bulk of the poor are in the land scarce south-western areas of Sri Lanka and the 30% of rural labourers who reported working for less than 30 hr per week in 1973 were, on average, available for another 19 hr of work. If there is no work available then im-

proved working strength is meaningless.

Between generations low occupational status, landlessness and below average education levels are almost certain to be repeated. Caste identity furthermore must be repeated.[8] Jiggins writes that about one-third of the Sinhalese belong to the two major low caste groups compared to the over one-half who are goyigama. The latter have provided 10 times as many MPs as the former groups.

That Sri Lanka has not so far managed to give the landless substantial access to the most obvious productive asset, namely land, is amply borne out by those who have written on the fate of the Paddy Lands Act of 1958,[9] which was intended to confer heritable rights on sharecroppers and contain rent levels. Gold,[10] indeed, points out that even its defenders hardly expected the Act to be successful. In 1972 all privately owned land of over 25 acres of paddy or 50 acres of tree crops was nationalized. Precisely 18,000 acres of paddy land were expropriated. I have calculated elsewhere that the average over 50 acre holding remained between between 70 and 80 acres after land reform.[11] (The 1975 land reform affected public companies *in toto*.)

One more point is that unemployment cannot be so lightly dismissed. The, especially male, children of the poor are more likely to be unemployed whatever their age and education level. They are furthermore less likely to be employed. Children of the poor leave school earlier but apparently find work more slowly than children of the rich. Income foregone through youth unemployment would seem to be not only relatively but absolutely higher for the poor than the rich.[12]

These comments are not intended to belittle the efforts and the willingness of successive Sri Lankan governments to improve the quality of life of their people. But the successful social programmes of Sri Lanka can better be seen as part of an overall compromise 'imposed' on a nation of conflicting interest groups which has left the overall social structure untouched. On this interpretation Isenman, ironically, is correct in writing that social programmes have substituted for the more radical redistribution of assets and incomes. However, these two alternatives should not be expected to achieve the same results.

## NOTES

1. However, I agree that 'one could, thus, hardly recommend Sri Lanka as a model for countries interested in basic needs to emulate'. See P. Richards and W. Gooneratne, *Basic Needs, Poverty and Government Policies in Sri Lanka* (Geneva: ILO, 1980), p. 3, 'Three opposing factors (to the 'Sri Lanka basic needs model') can be identified . . . the low over-all level of economic growth, the extent of unemployment and the perpetuation of poverty together with insecurity.'

2. World Employment Conference, *Declaration of Principles and Programme of Action* (Geneva: 1976). 1976).

3. ILO, *op. cit.*

4. As M. Leonor and I argue in our forthcoming study, *Education and Income Distribution in Asia* (London: Croom Helm). We argue that household background factors are likely to remain far more influential than schooling factors in determining the distribution of ability creation.

5. Richards and Gooneratne, *op. cit.*, p. 27.

6. Richards and Gooneratne, *op. cit.*, p. 45.

7. *Labour Force Participation Survey* (Central Bank of Ceylon, 1973).

8. J. Jiggins, *Caste and Family in the Politics of the Sinhalese* 1947–1976 (London: Cambridge University Press, 1979).

9. Richards and Gooneratne, *op. cit.*, p. 100.

10. M. E. Gold, *Law and Social Change: A Study of Land Reform in Sri Lanka* (New York: 1977).

11. Richards and Gooneratne, *op. cit.*, p. 93.

12. Richards and Gooneratne, *op. cit.*, p. 66.

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# Reply

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Richards raises some interesting issues with implications not only for judgements on Sri Lanka but for underlying approaches to development. Before commenting on them I would like to take the chance to acknowledge the debt my article owes to Richards; I have benefited from his 1969 and 1980 books on Sri Lanka,[1] his comments on an earlier draft of the article, and his role in commissioning other ILO-sponsored work on Sri Lanka (including the excellent study on fiscal incidence by Alailima on which I drew).[2]

I am perplexed by Richards' disagreement with my statement that social programmes can lead to striking progress toward social objectives. Is Richards saying that there can be no progress toward any social objectives unless there is progress toward all social objectives? In my view, attaining levels of life expectancy and education unheard of for such a low-income country is indeed striking progress.

As best as I can make out, my major sin is to have used a 'personal' definition of basic needs which differs from his definition. But though Richards quotes an ILO document, his (implicit) definition is surely personal as well and not that of the ILO – particularly in the degree of emphasis he puts on income distribution as an objective or *necessary* means. This disagreement on definitions raises several questions of broader applicability. To what extent should basic needs focus on relative rather than absolute poverty? To what extent should the *means* of achieving basic needs or related objectives be built, as necessary conditions, into its definition? How far down a hierarchy of needs should the definition extend? And to what extent should other objectives be built into the definition as well?

The short answer to all three questions is, I suppose, that anyone can define basic needs the way he or she wishes. However, going beyond personal preferences, there is general agreement among nations and individuals about the importance of relieving absolute poverty. There is much less agreement about the priority to be given to relieving relative poverty – important though it is as a social objective and as a means of relieving absolute poverty – particularly when choices must be made between the two.[3] The basic-needs approach, as interpreted by the ILO and by most, though not all, of those writing on this topic, has sought to appeal to the wide political spectrum of concern for absolute poverty.

Neither my definition nor Richards' is meant to include the full set of relevant economic, social, political and other objectives on which individuals and nations base their decisions. But there seems to me strong merit both in giving the absolute levels of health/education/nutrition of the poor substantial weight within this set of objectives, and in defining the term 'basic needs' (or some substitute therefor) to describe this subset of objectives narrowly, so that within reasonable limits neither the means of achieving it nor other less basic objectives are included.

Richards and I agree ('ironically' or not) that the distribution of income (Section 3 of my article) is important, that Sri Lanka has carried out little redistribution of assets, that 'unemployment is a very serious problem in Sri Lanka', and that education/health/nutrition programmes and 'more radical redistribution of assets and incomes . . . should not be expected to achieve the same results'. Much of our apparent disagreement comes simply from the question of what ought to be included in the definition of basic needs.

There is, though, one analytic point on which Richards and I seem in disagreement and which is important for the allocation of scarce resources to basic-needs programmes. This arises in his effort to discount Sri Lanka's heavy reliance on redistribution (by fiscal means) to meet basic needs. He argues that education can contribute to inequality in incomes in the next generation. But from a basic-needs perspective – his or mine – this is the wrong question. Rather, the question is whether the extension of *basic* (primary or adult) education increases the absolute or relative incomes of the poor. Since it is the children of the poor who do not complete primary education, its spread will improve the absolute incomes of poor families (and in Sri Lankan circumstances their relative incomes

as well).[4] More generally, the interlinked effects among the poor of primary education, higher life expectancy, lower fertility, and higher incomes mean in fact that programmes affecting them will often have their strongest effect after a one generation lag.[5] For example the children of parents who have primary education tend to have lower infant and child mortality, to go further in school, and to have fewer siblings with whom to compete for family resources.

Finally, let me note that the way in which differing definitions of basic needs can lead to unnecessary disagreement (or obscuration of underlying agreement) is one reason – along with related differences between North and South on its interpretation and intent – that basic needs has not been as useful a term as many of us had hoped a couple of years ago. Nonetheless, it seems to me it will turn out to have a major impact on the evolution of thinking about development – because it has emphasized the need for an explicit focus on non-income aspects of poverty, because it has led to greater recognition of the striking links among steps to redress these various aspects of poverty, and because it has helped to make primary education, health and nutrition better recognized as important means as well as ends of development.

## NOTES

1. Peter Richards and Wilbert Gooneratne, *Basic Needs, Poverty and Government Policies in Sri Lanka* (Geneva: ILO, 1980); Peter Richards and E. Stoutjecdijk, *Agriculture in Ceylon until* 1975 (Paris: OECD Development Centre, 1969).

2. P. J. Alailima, 'Fiscal incidence in Sri Lanka', W.E.P. Working Paper No. 69 (Geneva: ILO, 1978).

3. Relative concepts also underlie the choice of any given absolute standard (for, say income or life expectancy). Conflicts between relief of relative and absolute poverty can arise, for example, in education (see note 4) or when incomes of small farmers increase faster than those of landless labourers.

4. See P. Isenman, N. Hope, T. King, P. Knight, A. Noman, R. Pennant-Rea and A. Wood, *World Development Report*, 1980 (Washington: World Bank, 1980), pp. 32–53. On the margin, primary education will have a positive impact on incomes of the poor (including the landless, whose ability to migrate successfully will increase). Its effect on relative incomes of the poor will be a positive function of the per cent of poor children with a primary education; at low education levels education, like growth in modern-sector employment in a primarily traditional economy, can leave the remaining poor relatively further behind. This conflict between effects on absolute and relative incomes of the poor is even sharper for secondary and higher education, which presumably are what Richards is referring to. But they are not basic needs.

5. P. Isenman *et al.*, *op. cit.*, pp. 68–70.

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# Book Reviews

**Food Security Issues in the Arab Near East: A Report of the United Nations Economic Commission for West Asia.** Edited by A. A. El-Sherbini (Oxford: Pergamon Press, pp. 241).

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The report is based on the work undertaken by the Joint ECWA/FAO Agricultural Division under the supervision of Dr. Abdel-Aziz El-Sherbini. The report is divided into three parts: part one assesses the possibilities of increasing food production in the short-run in the six countries (Iraq, Jordan, Lebanon, Syrian Arab Republic, Yemen Arab Republic and Yemen People's Democratic Republic). Part two is devoted to the issues connected with creation and administration of food reserves. Part three discusses the international trade implications of ensuring secure sources of food supply.

An introduction by the editor highlights the nature of the food problem facing the countries under study. He emphasizes the fact that the growth of food production in Western Asia did not match population growth (around 3.0% per annum) and largely fell short of domestic food demand (4.5–5.0% per annum) (p. XVI). As a result 'the average energy supply *per capita* does not meet (by more than 10 per cent in several cases) the daily requirements' (p. XVI). The problem is further aggravated by extreme fluctuations in food production caused by a somewhat hostile climate and topographical conditions. However, the report suggests that there are considerable opportunities for rapid increases in food production even in the short and medium term. For instance, in rain fed land with an average annual rainfall of 300 mm or more, wheat production can be increased considerably if the government fixes the price at remunerative levels and organizes assured distribution of seeds, fertilizers and marketing outlets, together with a crop insurance scheme as a hedge against crop failures in poor years (p. 42). Such regions can also be developed into livestock producing areas by the replacement of the wheat-fallow system with a wheat-vetch rotation and by encouraging irrigated perennial forage crops.

While an increase in production of wheat and livestock products will reduce hunger and malnutrition, year-to-year fluctuations resulting from climatic factors will continue to be a serious problem for the region. Therefore the attainment of food security (i.e. stable supply of food) must have several components: concentrating production of particular crops in areas least vulnerable to such fluctuations; forecasting crops well in advance of harvest to allow the policy-makers to plan imports in good time, and the creation of a storage system well-distributed over the country which would serve to stabilize supply by a buffer-stock policy (p. 112). The report suggests that present storage facilities together with the silos and stores under construction are not adequate either in Jordan or in Syria, the two countries for which intensive studies were made (the results with the detailed methodology are reported in Chaps. 9 and 10). This should apply to other countries of this region also.

The twin policies of increased domestic production and stabilizing the domestic supply will not eliminate the need for food imports, at least for the foreseeable future. In stressing that a relatively high dependence on imported food together with concentration of food imports in few foreign supply sources 'represent the basic threat to Arab food security', the ECWA is echoing the fears of the Arab countries that food may be used against them as a political weapon, particularly because 'Collective action at the regional or sub-regional levels is virtually non-existent' (p. 225). According to the ECWA even the economic cost of 'the foregone collective action is very high' (p. 226). It advocates diversification of external food supply sources. 'This strategy is much needed as a safeguard against the instability of agricultural production and possible political coercion' (p. 226).

On the whole the report is a useful contribution towards the understanding of the food problem facing the West Asian economies. The statistical annexes would certainly prove extremely helpful to researchers who have consistently been plagued with the scarcity of usable data for the region.

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**Financing Mining Projects in Developing Countries: A United Nations Study.** By Marian Radetzki and Stephen Zorn (London: Mining Journal Books Ltd. in co-operation with the United Nations, 1979).

This book provides a competent and sensible overview of a subject frequently marked by hysteria. It points out in a workmanlike manner that developing countries have considerable scope for expanding their mineral production, in part for domestic consumption, but to a much greater extent for export. In spite of the book's brevity, the mineral specific information on growing demand and capacity requirements is comprehensive enough to provide a basis for estimates of investment requirements to 1990. The authors come to the very sensible conclusion that the total sums likely to be required in developing countries are modest in relation to total investment.

The book runs through the various aspects of the financing package, that is, the developing countries' internal sources of funds, and the current and likely sources of external funds, including those from international agencies.

It is clear from the analysis that the developing countries now have a wide range of choices in financing mineral development, and that they can exercise a great deal of control over production policies, pricing and the appropriation of rents even though the bulk of their investment might come from foreign private sources.

The book unfortunately stops at the point at which the subject becomes most interesting. The extent to which countries are able to benefit from mineral investments largely reflects their capacity for mineral-sector policy formulation and implementation, and their ability to handle negotiations with foreign investors, equipment suppliers and mineral consumers. Some countries have become very adept in these areas, but others still have a great deal to learn. The international agencies do not have the capacity to give the weaker countries the assistance they need. It is doubtful whether the best way to proceed would be either to increase the size of the existing agencies' bureaucracies or to create new agencies. A more practical approach would seem to lie in self-help that would enable the developing countries that have handled their mineral development successfully to help others to do so.

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# Economic Development in a Changing World

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*Presidential Address to the Development Studies Association Annual Conference, Swansea, 15–17 September 1980*

Without decolonization there probably would have been no development economics or development studies and possibly not much development either. Both the subject of economic development and the process of development as observed in the Third World are products of a changing world – of the aftermath of the Second World War, of the end of empire and of the spread of nationalism to the far corners of the earth.

It can be argued that the existence of the economically advanced capitalist nations inhibited the development of the underdeveloped countries in a variety of ways. The military power of the West was used to conquer a large part of the world, to create spheres of influence in nominally independent countries and to force some countries to engage in trade against their will by imposing so-called open-door policies. Politically, the dominance of the West was reflected in the establishment of colonial regimes and in the creation of both formal and informal empires throughout the world. The economic consequence was that in the underdeveloped countries the pattern of production and trade, the way in which investible resources were appropriated and allocated, and the development of human resources through education and training were all largely determined externally to the societies concerned.

In the last three and a half decades, however, this picture has changed almost beyond recognition. First, a large number of formerly dependent countries have achieved political independence. In 1945, for instance, when the United Nations was established, there were only 51 member countries, almost none from Asia and Africa. Today there are three times that number and only a tiny proportion of the world's population still lives in colonial territories. Second, the political and economic strength of the socialist countries has increased considerably and this has eroded the hegemony of the advanced capitalist economies and increased the room for manoeuvre of Third-World countries. Ideologically, socialism is on the offensive and in fact about one-third of the world's population now lives in countries in which the communist party is in power.

Third, the underdeveloped countries have grown quite rapidly. The second half of the 20th century has been, on the whole, a period of rising incomes per head in the Third World and the growth performance has been far better than that experienced by the now industrialized countries in the 19th century or by the underdeveloped countries in the first half of this century, when most of them were colonial territories. For example, the most recent World Bank statistics indicate that in the period 1960–1978, the rate of growth of gross national product *per capita* of the lowest-income underdeveloped countries was 1.6%; the middle-income countries experienced a growth rate of 3.7%, the same as the industrialized countries; while the socialist countries grew 4.0%/year/head.[1]

The combined achievements of political independence and economic growth are indeed remarkable. One is tempted to claim that the Third World has never had it so good. Before doing so, however, it is necessary to look a bit deeper.

The first problem is that the economic distance between the rich countries and the poor has grown wider, both absolutely and relatively. Even if the two groups of countries expanded at the same rate, the absolute differnces in *per capita* income would of course increase merely because the base to which the rates applied was so different. This point can easily be illustrated. During the period 1960–1978 the average annual growth of gross national product *per capita* was the same in Switzerland and Burundi, namely 2.2%. GNP *per capita* in 1978 was only $140 in Burundi, however, whereas it was

$12,000 in Switzerland, a difference of $11,690. Thus in Switzerland, the average person enjoyed an annual increase in his income of $266.20, compared to an increase of only $3.08 per person in Burundi, and in consequence the difference in *per capita* incomes increased by $263.12.

In practice, moreover, the situation is even less favourable for the Third World. That is, in general there has been some tendency for the Third-World countries to grow a little less rapidly in *per capita* terms than most rich countries. Consider the last two decades, 1960–1980. During that time GNP *per capita* in the advanced capitalist countries grew 3.2%/year and at least half again as fast in the advanced socialist countries. In the Third World, however, the growth rate was 3.0%.

Second, as is clear from figures already cited, within the group of countries which comprise the Third World, inequality has tended to increase. That is, the relatively more prosperous underdeveloped countries have tended to grow much faster than the poorest countries of the Third World. Indeed, differences in national income per head within the Third World have increased much more rapidly than the differences between the Third World as a whole and the rich capitalist countries as a whole. This has both economic and political implications. Economically it means that the most necessitous nations are lagging even further behind and several, e.g. Bangladesh, Chad and Niger are absolutely worse off today than they were two decades ago.

Politically, the growing inequality within the Third World is likely to undermine the solidarity of the poor countries. This solidarity never was very great, but such commonality of interests as has existed is almost certain to diminish. In consequence, the bargaining position of poor countries *vis-à-vis* the rich is likely to become even weaker, dissension and criticism within the so-called Group of 77 is likely to increase, and attempts are bound to be made to separate some of the more prosperous underdeveloped countries – especially oil-exporting countries – from the Group.

Finally, and most disturbing of all, is the evidence that even in countries where average incomes have risen, the standard of living of the poorest groups has fallen. A considerable amount of research has been done in Asia and hence the picture there is particularly clear. In the rural areas the proportion of the population below the 'poverty line' either has been rising (as in the Philippines) or has remained roughly constant (as in Pakistan).[2] Even in regions which have enjoyed exceptionally rapid growth – as in Punjab/Haryana, India – there has been no perceptible decline in the incidence of rural poverty. For example, between 1960–1961 and 1973–1974 the trend rate of growth of food production per head in Punjab/Haryana was 5.5%/year, yet the proportion of the rural population in poverty in those states decreased by less than 1%.[3] In other parts of India the situation was much worse. In West Bengal, for instance, agricultural output per head increased 0.8%/year during this period, yet the incidence of rural poverty rose by 26%.[4]

Independent evidence on trends in rural wage rates supports these conclusions. For example, in the Philippines the real daily wage in agriculture exhibited a clear and sharp downward trend between 1957 and 1974. In Sri Lanka real wages in the plantation sector fell continuously for 5 years between 1968 and 1972. In Bangladesh, real wages in agriculture were lower in 1975 than they were in 1949.

Turning to the urban areas, there was very little difference in the level of income of rural folk and the urban poor. Moreover, it is probable that the real incomes of the urban poor declined at about the same pace as those of the rural poor. There would be a tendency in most countries for internal migration to ensure that falling living standards in the countryside would spread fairly rapidly to the cities. In India, for example, real consumption per head of the poorest 40% of the urban population fell during the 1960s.[5] A detailed study of the city of Bombay indicates that the 'unorganized workforce', i.e. the poorest workers, were 'increasing in numbers and possibly as a proportion of the total workforce'. Moreover, 'it is very likely that . . . they lost in real terms'.[6] A similar story, no doubt, could be told of many other of the great cities of Asia.

The data for Africa and South America are less abundant and less reliable. Nevertheless it is apparent that poverty is increasing in many parts of both continents.[7] In some of the smaller African states, e.g. Chad, Ghana, Madagascar, Niger and Somalia, the growth of average income was negative or zero for many years, and it is to be expected that in such circumstances the poor would become worse off. It would be a mistake, however, to attribute the rise in poverty to slow aggregate rates of growth. Even in countries where average incomes are thought to have increased, as in Zaire and Zambia, it is probable that those of the poor declined.

In Latin America too there is a suspicion that considerable numbers of people have failed

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to benefit from the growth that undoubtedly occurred in the last two or three decades. Haiti has experienced many years of economic stagnation, but most of the other countries in the Western Hemisphere have enjoyed a substantial rise in average income per head. Yet poverty persists and may have become accentuated in certain regions and for certain social classes. Work done by myself in Guatemala in the late 1960s indicates that the income and consumption of the poorest members of society were falling. More recent work on Central America, concentrating on the period 1960–1971, reports that 'annual real earnings . . . appear to be falling for many landless rural workers in the most labour-abundant regions of El Salvador and Guatemala, while only increased participation of women and children in wage labour permits family incomes to be maintained'.[8]

Indirect evidence from Ecuador suggests that since the early 1960s there was a sustained but gradual deterioration in the standard of living of the campesino population inhabiting the Sierra. In Peru the available data indicate that most of the rural population, particularly that of the Sierra, and some groups of self-employed workers such as artisans and domestics, became relatively poorer over the period 1950–1966. The author of the study, Richard Webb, while emphasizing that his conclusions are highly tentative, none the less suggests 'that for a large proportion of the population, which could plausibly range between 15 per cent and 25 per cent, there has been no absolute improvement in living standards'.[9] This group consists largely of small farmers with 5 ha or less.

Thus the readily available material from Central America and Western South America, although incomplete and of varying reliability, is broadly consistent. Significant groups of the rural population, notably small farmers and landless workers, either have experienced no increase in their material well-being or have suffered some decline.

The increasing international inequality and national poverty, despite unprecedented growth rates, has led to frustration and bitterness in the poorest of the underdeveloped countries and among the poorest classes in almost all underdeveloped countries. This, in turn, is virtually certain to result in national political upheavals throughout the Third World and possibly to greater international discord. One need not subscribe to a materialist interpretation of history to acknowledge the connection between, on the one hand, poverty and inequality and an acutely felt sense of injustice and, on the other, the continuing appeal in many countries of populist, nationalist or revolutionary political movements.

The overthrow of the Shah in Iran, the violent destruction of the Somoza dictatorship in Nicaragua, the Muslim insurgency in the southern Philippines, the civil wars in Ethiopia and Afghanistan and the recently concluded anti-colonial struggle in Zimbabwe: these are contemporary examples of the sorts of things that can be expected in the future. Equally, however, one can anticipate the further spread of authoritarian regimes of the types present today in Chile, Pakistan, Morocco and Zaire, as those with a vested interest in the status quo strive to maintain their authority. We may well see in the years to come a gradual polarization of Third-World countries into those which achieve stability through repression and those which experience chronic instability and open conflict.

## ECONOMIC DEVELOPMENT AND DEVELOPMENT ECONOMICS

If government policies and the pursuit of development have led to the further impoverishment of the poor and greater social conflict, it is natural to ask what has gone wrong, who is to blame. Some may be tempted to argue that the disappointing results of development are due to the erroneous or, worse, nefarious doctrines of development economics. This would be wrong, I think, because the most immediate sources of action are not the writings of intellectuals but the interests of those who dominate the social and economic structure of a country. Having said this, however, it would be equally wrong to imagine that the ideas of economists and social scientists have had no influence whatever on the decisions of governments.

Looking back over the last 35 years, one can see that two political phenomena had a profound impact on the new subject of development economics. The first was the decline of the European colonial empires and the emergence of many newly independent countries with serious economic difficulties. The second was the eruption of the Cold War and the resulting intense competition between the socialist and advanced capitalist countries for the political and ideological support of the Third World.

Of the two, the second was especially important. The reason for this is that moral outrage against poverty and exploitation was at the centre of the Marxist ideology of the socialist countries. The ideology of the West, in contrast, was based on the pursuit of self-interest

and clearly had more appeal to the top dogs of the world than to the underdogs. Moreover, the socialist countries claimed to know how to overcome poverty and underdevelopment, namely by transferring power to the working class, socializing the means of production and establishing a system of central planning. The liberal market solution of the West appeared at that time to offer little more than secular stagnation punctuated periodically by depressions of the type we are experiencing today.

The moral and intellectual challenge of the socialist countries to Western influence in the Third World thus was formidable. The response of the rich capitalist countries perhaps was predictable, namely aid, i.e. grants, loans, tied export credits, sales of surplus commodities on favourable terms, direct private foreign investment and technical assistance. It is hardly an exaggeration to say that without the Cold War there would have been no foreign aid.

Foreign aid was supposed to result in a high level of investment, and thereby enable an economy to 'take off'. In practice consumption usually increased more than investment, but Western development theory tended to ignore this for a long time. Instead the majority of development economists insisted, quite wrongly, that foreign resources were both necessary and sufficient to increase the rate of accumulation. To argue otherwise would be to cast doubt on the utility of such institutions as the World Bank, to remove much of the economic rationale for bilateral aid programmes and generally to undermine the justification for an enormous and highly paid United Nations civil service engaged in recruiting 'experts' to send to 'the field'. Clearly, no development economist worthy of his consultant's fee was likely to question the link between foreign aid and domestic capital formation.

A second strand in Western thought on development has been the centrality of investment in determining the rate of growth. The key to faster growth was believed to be a rising capital–labour ratio. No matter that empirical studies showed that capital formation could account for only a fraction of the rise in labour productivity, or that the effectiveness of investment (as measured by the incremental output–capital ratio) varied enormously from one country to another, if only a country could reduce consumption and raise saving and investment, growth would accelerate and all would be well. In practice this view gave governments an excuse to squeeze the consumption of the poor and redistribute income in favour of the 'saving classes', i.e. the rich.

The bias in favour of investment was accompanied by a bias in favour of industry. The historical experience of the West was interpreted as indicating that manufacturing was the 'leading sector' of development and therefore ought to be encouraged by whatever means were available. In the event the means were protection, subsidies and tax advantages. The effects were high profits for the capitalist class, high costs for the economy as a whole, high prices for the consumer, adverse terms of trade for the farmer and discouragement of small-scale enterprises, especially those located in rural areas. Industrial output did indeed expand rapidly in many countries, but as often as not poverty failed to decline significantly.

With the emphasis on industrialization came an espousal of planning. At first sight it seems curious that Western development thought, given its origins in the Cold War, should include a place for state planning. Yet it did. The reason is that development was viewed as an activity for experts and technocrats, that is, for the élite. The type of central planning usually advocated represented in essence a marriage of Keynesian national income accounting concepts and econometric methods. Planning was to be from the top down; the purpose of planning was to accelerate the rate of growth; and the benefits of growth were expected to trickle down to the mass of the population.

The objective of planning was defined narrowly as increasing the rate of change of an aggregate statistic called gross national product. The elimination of poverty was not itself a goal; this was to be achieved indirectly, probably only in the distant future, and not as a direct consequence of government action. Even less concern was shown about reducing inequality. Indeed, it was thought that greater inequality probably was inevitable and possibly was desirable in order to provide incentives and encourage savings and investment.

This whole approach to development increasingly is being rejected. To the nationalist it is unacceptable because it makes a country excessively dependent on foreign capital to finance growth. To the democrat it is unacceptable because of its authoritarian implications. To the moralist it is unacceptable because of its disregard for equity. And to the economist it is becoming unacceptable because it has done so little to raise the welfare of large sections of the population.

Instead of foreign capital, more emphasis is beginning to be placed on national self-reliance in financing development. The poor aid performance of the major donor nations and the

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fear of the transnational corporations in many Third-World countries have helped to lead to a reassessment of the role of capital imports. To some extent this is making a virtue of a necessity, but many observers in the underdeveloped countries increasingly are pointing to the positive advantages of greater self-reliance and to the disadvantages of dependency. It is perhaps significant that more aid plays a relatively small part in the demands of the Third World for a New International Economic Order.

Along with reduced emphasis on foreign aid has come a reduced emphasis on investment. No one, of course, denies the importance of capital accumulation in promoting development. It is virtually a *sine qua non*. The new approach, however, gives much greater recognition to the mobilization and development of human resources, the possible contribution of family planning to poverty alleviation and to the introduction of more appropriate forms of technical change. The view that investment in machinery and buildings is almost the only thing that matters has been replaced by a view that investment often has been badly allocated, that the introduction of new technology often has aggravated problems rather than solved them and that capital, land and labour are often underutilized.

The greatest waste of resources probably has occurred in the industrial sector. Moreover, the growth of this sector has done remarkably little either directly or indirectly to solve the basic problems of underdevelopment. In reaction to this, and to the periodic 'food crises' that beset Africa and South Asia, rural development now receives much greater attention than it did in the 1950s and 1960s. Although there is a danger that opinion will swing too far in the opposite direction, there is no doubt that in a great many countries a better balance was needed between the rates of growth in the agricultural and non-agricultural sectors.

Rural development, however, cannot easily be centrally planned. Consequently the shift of thinking in favour of agriculture and the mobilization of local human and material resources has been accompanied by a reduced emphasis on national planning and a growing awareness of the need to devise an administrative structure that would permit regional decentralization, local autonomy in making decisions of primary concern to the locality and greater local responsibility for designing and implementing development programmes. Such changes, evidently, are not just technical or administrative; they are political. They involve a transfer of power from the groups who dominate the centre to those who have control at the local level. It is conceivable, even likely in many countries, that power at the local level is more concentrated, more élitist and applied more ruthlessly against the poor than at the centre. Thus greater decentralization does not necessarily imply greater democracy let alone 'power to the people'. It all depends on the circumstances under which decentralization occurs.

Finally, the rate of growth of GNP has been dethroned as the sole, or major, objective of policy. Instead of growth, emphasis now is being placed on measures aimed directly at reducing poverty. The more radical thinkers have argued that reducing inequality in the distribution of income should be the first priority, that this is impossible without redistributing productive wealth, in particular land, and that this, in turn, requires major political and institutional changes. The more moderate thinkers have focused not on inequality as such but on more limited measures to meet the 'basic needs' of the entire population for adequate nutrition, health, clothing and shelter.

Differences between the two groups arise partly over the choice of tactics, some advocates of a 'basic-needs' strategy wishing to differentiate their approach from that of 'revolutionaries'. They differ also because of differences in the conception of poverty, the 'basic-needs' strategists often taking the view that poverty is an absolute, largely physiological concept whereas the radicals view poverty as a relative concept. Partly, too, they differ about what economic measures are necessary to reduce poverty. At one extreme are those who think that basic needs could be satisfied if only underdeveloped countries would grow more food; at the other extreme are those who reply that more food would be grown if only the poor had greater purchasing power and controlled the means of production. My own views are closer to the latter than to the former.

There still are many people from the Third World who oppose any change in domestic policy which would alter the distribution of income in favour of the poor. In the words of a senior Pakistani official, they '. . . find it difficult to accept the two-fold assumption that is implicit in the basic needs approach. First, that the developing countries need to put their houses in order *instead* of seeking to remove inequalities among nations.' And second, '. . . that it is possible to satisfy the basic needs of people in the poor countries without a rapid and comprehensive development of their economies through industrialization, improvement in terms of trade and so forth'.[10]

The issue, however, is not primarily one of industry vs agriculture, but of what pattern of industrialization, what institutional framework for agricultural expansion and what balance between the growth of the agricultural and industrial sectors. Similarly, the issue is not whether national redistribution should occur instead of international redistribution – both obviously are desirable – but whether the alleviation of poverty in underdeveloped countries must wait until there is a significant redistribution of income on a world scale. If it is in fact necessary to wait, then the prospects for the poor are very dim indeed. The evidence, however, indicates that even in the poorest countries national resources can be mobilized so as to satisfy the essential needs of the entire population within, say, a generation or a bit more. Thus it is not necessary to change the entire world, to have a New International Economic Order, in order to abolish poverty. Rather, if each country would embark on a programme to abolish the poverty within its borders, the world would soon be changed in the process.

## NOTES

1. World Bank, *World Development Report*, 1980 (Washington: 1980), Table 1, pp. 110–111.

2. Keith Griffin and Azizur Rahman Khan, 'Poverty in the Third World: ugly facts and fancy models', *World Development* (March 1978).

3. Keith Griffin and Ajit Ghose, 'Growth and impoverishment in rural Asia', *World Development* (April/May 1978), Table 7, p. 371.

4. *ibid.*

5. V. M. Dandekar and N. Rath, *Poverty in India* (Bombay: 1971), Chap. 2.

6. Heather Joshi and Vijay Joshi, *Surplus Labour and the City: A Study of Bombay* (Delhi: Oxford University Press, 1976), p. 108.

7. See Keith Griffin, *International Inequality and National Poverty* (London: Macmillan, 1978), pp. 146–149.

8. Clark Reynolds, 'Fissures in the volcano?: Central American economic prospects', draft (November 1975), p. 15.

9. Richard Webb, *Government Policy and the Distribution of Income in Peru*, 1963–1973 (Cambridge, MA: Harvard University Press, 1977), p. 42.

10. See the statement of the Ambassador of Pakistan to France, Iqbal Akhund, 'A Third World view', *OECD Observer* (January 1979), p. 6, emphasis in the original.

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# Fostering the Capital-Goods Sector in LDCs

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**Summary.** – The conventional arguments in favour of the production of capital goods by LDCs are based on comparative advantage, the possibility of designs appropriate to indigenous factor proportions, and the externalities conferred on other sectors. These and other arguments are inducing the governments of many middle-income countries to more intensively foster the development of the machinery sector. This paper examines the analytic and empirical bases of the conventional arguments and finds a considerably more complex picture than that contained in earlier studies.

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## 1. INTRODUCTION

The conventional arguments for fostering the production of capital goods in LDCs fall into three categories: the comparative advantage accruing from low labour costs; the capacity to produce machines having appropriate designs; and the prospect of externalities.

Even in advanced countries, the capital-goods sector is labour-intensive, more specifically skilled labour-intensive. A number of LDCs have a substantial supply of skilled workers available at a fraction of the wage paid to their counterparts in developed countries. If it is assumed that they do not exhibit commensurately lower productivity, their wage levels should confer a cost advantage. The remuneration is relatively low not only for skilled operatives but also for engineers and technicians. Because the sector requires substantial services from engineers and technicians – services ranging from design to prototype production – its comparative advantage in LDCs is further enhanced. In addition, exports often require that engineers and technicians employed by the seller reside in the importing country for a fairly long period (Cortes, 1978). The lower expatriate allowances paid to skilled LDC personnel constitute still another advantage.

The production of capital goods often evokes images of large, highly mechanized plants in which scale economies, particularly in the use of capital, may attenuate any advantage LDCs derived from lower labour costs. But many subsectors of the capital-goods industry, even in the United States, have a relatively large number of small firms producing a significant proportion of value added (Table 1). This pattern has existed throughout the century and is not attributable to factor market imperfections: the wage rate paid by the smaller firms is roughly similar to that of large firms, and it seems unlikely that the firm structure would be maintained in the face of low returns on capital. Moreover the average product of labour is fairly similar among firms of varying size (Table 2). If it is assumed that the higher labour–capital ratio of smaller firms is reflected in at least the same average product of capital, total factor productivity is not likely to be lower in small companies.[1]

Thus, in so far as the industrial structure of the United States provides a guide, firms of varying size may be efficient, and the wage advantages of LDCs need not be offset by lower productivity or the failure to realize scale economies. It is necessary, however, to consider the two other principal cost components in any sector: materials and capital. As will be shown, full

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Table 1. *Summary measures of the US machinery sector, by subsector,* 1967

| Subsector | Percentage of employment in firms employing fewer than 250 workers | Percentage of value added originating in firms employing fewer than 250 workers |
|---|---|---|
| Steam engines and turbines | 0 | 3 |
| Internal combustion engines | 7 | 7 |
| Farm machinery | 32 | 26 |
| Construction machinery | 17 | 15 |
| Mining machinery | 32 | 30 |
| Oilfield machinery | 37 | 39 |
| Woodworking machinery | 50 | 41 |
| Paper industry machinery | 33 | 35 |
| Printing trades machinery | 37 | 35 |
| Pumps and compressors | 25 | 25 |
| Ball and roller bearings | 10 | 9 |
| Elevators and moving stairways | 34 | 36 |
| Conveyors and conveying equipment | 54 | 54 |
| Hoists, cranes and monorails | 24 | 25 |
| Industrial trucks and tractors | 33 | 27 |
| Metal-cutting machine tools | 15 | 24 |
| Dies, tools and jigs | 88 | 89 |
| Machine tool accessories | 47 | 45 |
| Food products machines | 61 | 55 |
| Textile machinery | 35 | 37 |
| Metal-forming machine tools | 36 | 37 |

Source: US Department of Commerce, 1967 *Census of Manufactures* (Washington, D.C.: 1971), Vol. 2.

Table 2. *Value added and annual remuneration per employee in selected subsectors, by size of firm, United States,* 1967 *(dollars)*

| Size of firm (employees) | Farm machinery | | Machine tools | | Dies, tools and jigs | | Textile machinery | |
|---|---|---|---|---|---|---|---|---|
| | VA/L | W/L | VA/L | W/L | VA/L | W/L | VA/L | W/L |
| 1–4 | 13,556 | 5333 | 19,750 | 8250 | 17,933 | 7933 | 15,333 | 7000 |
| 5–9 | 11,364 | 5636 | 16,000 | 8000 | 14,557 | 8658 | 12,800 | 7000 |
| 10–19 | 11,484 | 5581 | 19,957 | 8217 | 13,612 | 8481 | 10,400 | 6100 |
| 20–49 | 11,551 | 5694 | 13,581 | 8163 | 14,214 | 8988 | 10,447 | 6237 |
| 50–99 | 11,284 | 5716 | 16,000 | 8904 | 15,031 | 9503 | 9667 | 6190 |
| 100–249 | 12,524 | 5707 | 15,593 | 8321 | 15,102 | 9398 | 10,952 | 6476 |
| 250–499 | 14,028 | 6413 | 16,736 | 9632 | 14,646 | 9104 | 11,030 | 6597 |
| 500–999 | 16,200 | 7467 | 17,928 | 8245 | 11,674 | 9391 | 10,660 | 6489 |
| 1000–2499 | 16,500 | 7596 | 15,333 | 8761 | 14,683 | 11,171 | 9189 | 6250 |
| 2500 or more | 17,634 | 8079 | 14,363 | 8960 | n.a. | n.a. | –* | –* |
| Average | 14,978 | 6946 | 15,955 | 8714 | 14,496 | 9092 | 10,179 | 6380 |

Source: Same as for Table 1.
n.a. = not available.
* Data included in another category to preserve confidentiality.

recognition of these components leads to a more qualified view of the probable degree of static comparative advantage currently enjoyed by LDC producers.

The production of appropriate machinery is the second argument. If LDC firms produce machinery more in keeping with the relative factor endowments of LDCs, such production would have a desirable effect on both income-generation and employment opportunities.[2] For example, India with its large supply of unskilled labour would benefit from the local pro-

duction and adoption of equipment that, for a given investment level, uses more labour than is required by imported equipment from the advanced countries. Cost minimization by local users of equipment would lead to a demand for more labour-intensive machines, a demand which domestic manufacturers might be more likely to satisfy than would producers in developed countries.[3] Satisfying this demand does not imply that the equipment produced would be expected to be frozen at a primitive level. Instead 1960 or 1965 models could be produced and gradually updated as changing factor scarcities warranted.[4]

Production of equipment of an older vintage, augmented by the ability to organize turnkey plants, would increase the range of factor choice both in the equipment-producing country and in the importing country.[5] As an important by-product, LDC engineering-consulting firms could provide a range of information different from that available from firms in developed countries, as could the salesmen of producers. Even if initial presentations do not lead to sales, reiteration by salesmen of the existence of alternate sources of machinery could make purchasers more receptive to LDC equipment, thus yielding externalities to LDC producers as a group.

The prospect of externalities is the third argument: the skills generated in the mechanical-engineering sector are useful in other sectors. Some workers engaged in the production of equipment may move to the equipment-purchasing sectors. Given the frequent process interruptions attributable to poor maintenance and repair, such a diffusion of skilled workers would permit an increase in the use of plant and unskilled workers. Moreover the willingness to use second-hand equipment might be greater if firms have confidence in their own repair skills and their ability to produce spare parts. One risk noted in the use of second-hand equipment is the difficulty of re-establishing the initial performance standards in a new environment after dismantling, crating, shipping and reinstallation (Cooper and Kaplinsky, 1974). Such obstacles can be reduced if persons with experience in machine construction do the maintenance.

A local ability to produce capital goods could contribute to the adaptation of imported equipment to obtain better local performance than from an unimproved model. Just as agricultural technology requires local adaptive efforts for maximum productivity, a similar effort is likely to be needed in manufacturing. For example, differences in the scale of operations, the quality of raw materials, and the skills of workers may reduce the output obtainable from an 'unimproved' imported machine. Although the purveyors of turnkey plants or individual machines might also help in these respects, the accumulation of experience by local firms is likely to prove more effective. Problems would not be approached on a one-shot basis, and skills obtained in one set of adaptations would likely be transferable to others.

Although the potential for obtaining an augmented range of equipment, as well as externalities, increases the attractiveness of the machinery industries, it should be emphasized that, even without this potential, the efficient, labour-intensive earning of foreign exchange may offer an important, largely neglected source of future growth for countries with the requisite supplies of skilled labour. As shall be shown, however, such growth may face obstacles typically neglected by the simple theory of comparative advantage.

The focus of this paper is on the first two categories of conventional arguments for fostering the production of capital goods in LDCs. The externalities to other sectors are not considered because of the paucity of evidence. By their nature these externalities require evidence of the benefits the engineering sector confers on those other sectors, including the diffusion of skills by movements of workers among industries and the design of special devices that can improve the local performance of imported equipment. Historical evidence indicates that these benefits have been substantial in the industrial countries; indeed nations with a small, backward engineering sector have suffered.[6] There is no reason why LDCs could not derive similar benefits. However, if the encouragement of the capital-goods sector cannot be based on the potential for cost efficiency, on adaptive design behaviour, or on both, the invocation of externalities cannot at this stage of knowledge serve as a justification. The empirical base is too small to argue the relative magnitude of such benefits to other sectors.

## 2. EVIDENCE OF COST EFFICIENCY

The survey of production problems in this section is not intended to question the eventual emergence of efficient capital-goods manufacturing in the countries examined or in some even smaller producers. Instead it emphasizes that even advanced producer-nations encounter severe production problems, which significantly increase their costs. The amelioration of existing

difficulties offers an opportunity for the reduction of costs in the intermediate term, a reduction that can provide a cushion in the transition to a status in which production is efficiently executed and domestic innovation, previously of limited significance, begins to make a contribution to the competitiveness of the industry.

To describe and analyse the costs of production in the mechanical-engineering sector, I draw on the recent experience of the principal LDC producers: Argentina, Brazil, India, Korea, Mexico, Pakistan and Taiwan.[7] I consider both the producers of equipment and their suppliers in the metal-products sector, particularly foundries and forges. The analysis thus centres on the later stages of production of engineering products and does not include iron and steel operations or speciality metal products necessary for the sector. Although domestic production of basic metals at high cost behind tariff protection would reduce any cost advantage inherent in the LDC fabricating sector, this competitiveness can be restored by liberalizing the trade regime. Any cost disadvantages on this account should not be viewed as militating against the competitiveness of the mechanical-engineering sector. If liberalization were not implemented, the sector would of course be penalized.

The potential cost advantage among the enormously varied range of engineering products can be rigorously analysed only within a fully articulated model of the mechanical-engineering industry. The optimum technical organization of even a fairly simple engineering product, compared with any process-centred production activity, is particularly difficult. In a recent study Lamyai *et al.* (1978) demonstrate that optimal use of either labour *or* equipment can lead, when compared with a suboptimal solution, to as much as a 90% reduction in average cost. Larger batches of an identical product reduce the set-up times of equipment and the skilled labour per unit of output; the manufacture of different products having similar requirements of skill and equipment can increase the rate of use of both inputs.

It might come as a surprise that the correct use of skilled labour can be as important as the optimal use of equipment in reducing costs. If plants in developed countries typically exhibit higher utilization rates per hour for skilled labour and equipment than LDC firms do, they are likely to exhibit greater plant-wide efficiency. Thus, if the LDCs are to be competitive in engineering activities, productivity on individual tasks must be sufficiently high or factor prices or material costs must be sufficiently low to offset the probable firmwide productivity difference.

As will be shown, a considerable number of simple production problems exist, even for products in which LDCs may have a comparative advantage if reasonable levels of $x$-efficiency were realized.[8] Of course, similar problems of static inefficiency arise in most industrial activities within LDCs, problems which explain the level and variation of effective protection across sectors. Unless $x$-efficiency is worse and prospects for improvement are poorer in the capital-goods than in other sectors, the problems described do not constitute an argument against the sector. Instead the following analysis is designed to move the discussion from the simple factor-proportions model of capital, unskilled labour and skilled labour toward a fuller consideration of such questions as the productivity of workers on tasks, the low productivity of plants, the weakness of the subcontracting network, the poor record of some supplying sectors, and adverse policies of government. These categories are not mutually exclusive but are adopted here for expositional convenience.

### (a) *Task-level productivity*

Although skilled operatives in LDCs receive lower wages than those in developed countries, the obvious question is whether labour productivity is proportionally lower than warranted by the smaller quantity of capital per worker, and thus nullifies the wage difference. It is useful to distinguish two aspects of labour productivity. The first is the number of items produced per minute by a worker on a set task, such as cutting a block of metal, if it can be assumed that the metal is available, machines are in good order, and so on. The second is the output per operative day, which depends on the first aspect and on the rate at which metal is made available, the frequency of mechanical breakdowns not attributable to the operative, the time operatives spend moving material among work stations, the number of different tasks assigned to each worker and their respective set-up times, and so on. The second aspect reflects the management ability of a firm and the environment outside the firm, though capable managers may be able to mitigate such deleterious external factors as irregular deliveries of raw materials.

Most observations of the factories operating in the LDCs indicate that the performance of operatives on a given task is high, despite the

use of less sophisticated equipment. In many activities their performance equals that of factory workers in developed countries; rarely is it less than 30% of their level.[9] Productivity on a plantwide basis, however, often is much lower. For example, in the Indian textile-machinery sector, labour productivity in the best firms was estimated at a third of that in European companies and, in the worst, at a tenth. Nevertheless wages a twelfth of the European level permit lower unit labour costs in both sets. Similarly a study in Korea of the entire mechanical-engineering sector found labour productivity to be 20–30% of that in Britain and the United States; wages were less than 10% of those in Britain and the United States. For Indian forging plants it has been reported that productivity on set tasks is only slightly lower, whereas plantwide labour productivity is about a sixth of that in developed countries.

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Lower productivity at the task level, when it was observed, was attributed to a variety of causes: inadequate instruction about the potential cutting effectiveness of a machine tool, which workers were using at its currently misestimated potential; poor working conditions, such as a lack of clear floor space on which to begin a new job; the use of poor cutting tools and tool holders; the absence of technical aids to operatives; and the failure to employ jigs and fixtures in setting-up operations.[10]

Among these problems, it is useful to distinguish those which reflect a movement along a production function in response to the low wage–rental ratio (the use of poor-quality cutting tools and the absence of jigs) and those which result in a failure to reach the production function or in *x*-inefficiency (the misestimation of machine potential). It is not always easy to determine the category in which a specific observation is best placed, but the analytical distinction is important because the first group presumably leads to a decrease in production costs while the latter increases them. Moreover, as factor prices change, labour productivity will improve if firms are rationally responding to relative factor prices, whereas a movement toward the production function may not occur without some form of technical aid.

I turn now to an example of factors impinging on task-level productivity. Although it is drawn from the detailed account of a recent study of machinery industries in Korea, similar examples are found in descriptions of other countries:

> In the best-run Western machinery and metal working establishments, there is an abundance of technical material available to the machine operator and the first-line supervisors. These materials take the form of wall-charts, tabular materials, condensed handbooks of technical information, etc., all of which are designed to assist the man in making proper measurements, making conversions from one type of system to another (e.g., English measures into metric), to choose the right feed and speed for the machine based on the type of material being worked and the type of operation, and a variety of other technical information to assist in day-to-day standard operations in the plant. This kind of material was noticeably lacking in the plants visited. There is, of course, a good deal of documentation available to the front office management, the plant engineer, the production manager, etc., on the characteristics, design, functions, speeds and feeds for the specific machines in the shop, but that kind of information is at a different level from the kind being described here, which is standardized technical information that is necessary on the shop floor so that the operators and first-line supervisors will not have to do standard calculations, nor make guesses that can lead to mistakes when there is a simple way to look it up (World Bank, 1978).

The foregoing example of the source and character of *x*-inefficiency can be supplemented by numerical estimates, such as the observation in several plants that the output obtained from machine tools by a given worker could be increased 40% if improved inexpensive cutting devices were used. Similarly a large milling machine which could hold a 'cutter of 12 to 18 inches in diameter was using a cutter of 3 to 4 inches, and even this cutter was not removing metal at more than 50 percent of its potential capacity' (*ibid.*).

### (b) *Plantwide productivity*

What is the cause of the discrepancy between task-level and plantwide labour efficiency? What factors affect the efficiency of use of equipment and materials?

Plant layout and scheduling have a substantial effect on productivity. In many machine-producing activities neither the order of operation nor the placement of machines is inherent in the process. Nor is it physically difficult simply to stop the process and hold a partly finished piece at a work station until it again is convenient to work on it. The difficulties raised by the wide latitude of choice could be solved by adequate management. But many of the detailed studies of plant operations in LDCs indicate that the difficulties are not avoided. The typical plant exhibits a poor layout in which the movement of work in process interferes

with operations at individual work stations, where an accumulation of partly finished pieces is being held until workers return to them. And despite the fact that the diversity of products requires careful scheduling to increase the use of equipment, all of the surveys report poor scheduling.[11] Not only is the use of equipment and labour reduced; there also are delays in identifying and correcting errors (World Bank, 1974b). Thus the productivity of both labour and equipment are decreased, and the substantial work-in-process inventory generates interest charges that are higher than necessary. Consider one description of the effect of poor scheduling on labour productivity:

> The common pattern was one of machine placement that is haphazard rather than allowing for an orderly flow of work. Floor space is very crowded and the operation of machining, fabrication of components, assembly of parts, are scattered in any place that happens to have available room. Too much time is spent finding work, or the next job, or material. In some cases the men have to find their own area in which to work, perhaps make up some form of fixtures of their own, or find the means to obtain levels or measurements to work from. The almost universal characteristic is one of congestion and a mixing of operations that frequently leads to deterioration of quality because of improper floor planning. There is no adequate provision for working space around the main machines and the aisleways that are normally used to carry the flow of work are completely congested with work-in-process. There are typically about double the number of machines per square unit of floor than there would be in an efficient layout. This is exacerbated by another condition, namely, wherever there is some vacant space because of temporary slowing down or poor operating practices, the tendency is for many small operations to settle in as 'squatters' doing assembly of small components, or a welding and/or cutting operation (World Bank, 1978).

The congestion noted was not attributed to inadequate floor space and cannot be viewed as an optimizing response to a specific factor shortage.

A recurrent finding of the studies in all countries has been the low capacity utilization of equipment. Although it now is commonplace to find low capacity utilization in many LDC industrial sectors, it seems likely that the cause of the difficulty is somewhat different for non-process industries than for process industries.

Mechanical-engineering plants use a number of costly individual items, such as fixtures, machine tools and welding equipment. Each can be fully utilized if a plant produces a large number of items of a single type or a range of products that require a similar operation – stamping, for example. A large batch of a single item would be produced at lower cost than smaller lots of a number of products because of the difference in set-up time.[12] The higher cost of production in small lots would slow the long-run growth of the product's sales, given the domestic demand curve. Although it might be argued that the excess capacity could be used for exports and thus yield a reduction in production costs, the difficulties of marketing mechanical-engineering products precludes this pursuit as a short-term strategy for most products, even though some standard products, such as simple lathes, might respond to greater export effort. The intrinsic problem of efficiently using a given machine or set of machines will become less severe with the growth of the domestic market and, as efficiency and marketing ability increase, with the growth of exports. At their current stage of development, however, many LDCs producing significant quantities of machinery exhibit low rates of capacity use, which clearly undercut their efficiency in relation to their competitors in developed countries.

Materials management is a related area of weak performance. In Indian foundries it was often found that scraps and castings were not returned to their proper place for storage and that sand accumulating on the floor was left (World Bank, 1974a). The same phenomenon was noted in Korean plants, in which as 'much as 50 percent of the total floor area [was] occupied with heaps of discarded sand which had been knocked away from previous castings' (World Bank, 1978, p. 67).

### (c) *Subcontracting networks*

A principal requirement of the entire mechanical-engineering sector is the development of a subcontracting network. In the machinery sector of the advanced countries, subcontracting has proved to be important in reducing costs. Small firms concentrating on a few operations or components common to a large number of producers are able to utilize special-purpose equipment fully, as well as obtain the benefits of learning over time as a result of specialization in a narrow area. If the volume were sufficient, such specialization could occur within larger firms, but quantities currently produced are too small to allow this.

There are two requisites for obtaining the potential benefits of subcontracting. First, the parent firm must be able to co-ordinate multiple sources of supply so that production is not

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interrupted by the absence of components. Second, the subcontractors must be efficient and reliable. The evidence in the country studies surveyed in this paper suggests that subcontracting, although extant in some countries and in some sectors, is limited. This results partly from the unreliability of existing subcontractors in meeting delivery dates and quality specifications, partly from their relatively high costs. It is unclear whether larger firms encounter limits on their ability to organize a subcontracting network, because the typical reason adduced for the absence of such a network is the low quality of subcontractors. Nevertheless the observations of plant layout and other intraplant production difficulties suggest that some of the problem may reside in the parent firms. That would imply that the organizational costs of subcontracting may currently exceed the cost reductions to be derived from it – that is, from the greater factor utilization and the learning stemming from specialization. That would also imply that an improved sectoral division of labour is contingent upon the accumulation of adequate organization ability. Those implications can be set down briefly as follows.

Let $C'_I$ and $C'_E$ be the marginal costs of internal and external co-ordination, $P'_I$ and $P'_E$ the marginal costs of internal and external production. Unless $C'_I > C'_E - (P'_I - P'_E)$ the firm will not engage in subcontracting. Such a decision may be short-sighted if the firm's estiate of $P'_E$ is based solely on the reduction in cost achievable through greater rates of use of labour and special-purpose equipment by the subcontractor, but not on the subcontractor's eventual reduction in cost attainable through learning by doing.[13] Similarly the learning may reduce $C'_E$. The basis for several recent government efforts to foster subcontracting can only be the attribution of such short-sightedness. Simple assertions of the benefits accruing from more extensive utilization of specialized equipment are not an adequate basis for such intervention because they ignore the co-ordination costs. Those co-ordination costs may explain some of the following phenomena.

Despite efforts to foster subcontracting in the late 1960s, the largest Indian machine-tool producer purchased only 10% of its inputs externally; for one Western European collaborator the comparable figure was 40% (Frankena, 1971). Similarly, of about 250 suppliers of components to the Indian textile-machinery industry only 10 produced high-quality components, primarily in collaboration with companies in developed countries (World Bank, 1975).[14] The additional costs incurred by an LDC sector characterized by large firms and limited subcontracting will clearly be substantial in relation to those of more specialized sectors in developed countries.[15]

Although the sector-wide loss in potential cost reduction is widely recognized, effective solutions have not been designed. But without availing themselves of subcontracting and the real external economies bestowed upon the industry as a whole, LDC machine-producing sectors are subject to an immediate cost handicap in relation to their competitors in developed countries.[16] This may nevertheless be the best the sectors can do, given their limited organizational ability.

Related to the weakness of subcontracting networks is the absence of an ability to rebuild equipment. That ability increases productivity because the cost of rebuilding typically is low relative to the price of new machines. Furthermore the productivity of older equipment can be raised to high levels with the addition of features newly available:

> In many cases rebuilding does not involve going back to the original design; there are often possibilities for adding gauges or precision accessories, and in the process the quality of the machine will be upgraded and its performance characteristics will be significantly improved (World Bank, 1978, p. 85).

Although numerous firms in developed countries specialize in rebuilding, there is none in such a country as Korea. Moreover a rebuilding capacity would increase the comparative advantage of LDCs in machinery, because the activity itself is skill-intensive.

### (d) *Backward linkages*

Castings and forgings are principal inputs used by the mechanical-engineering sector. The production of these inputs is intensive in skilled labour, and mechanization is not economical, except at very high volumes. They can thus contribute to the competitiveness of the machinery sector if they are efficiently produced – that is, at less than c.i.f. prices.[17] Two sets of questions arise about the performance of most LDCs in these activities: first, narrow questions of intraplant efficiency; second, broad questions arising from the complex interventions associated with import substitituion.

To establish the relative labour intensity of foundry and forging operations in LDCs, consider the 'typical' fixed capital–labour ratios in India and the developed countries: in India it is $3500 per worker, in the developed

countries $25,000 per worker (World Bank, 1974b).[18] To the Indian figure must be added $3500 for working capital; a smaller figure is characteristic of companies in developed countries.[19] Nevertheless the total capital–labour ratio remains considerably lower, reflecting the lack of conveyors, pusher-type induction furnaces, and automated transfer lines. Despite the saving in fixed capital of the (quite different) production process, the price of Indian forgings similar in quality to imported forgings is, on the average, 50% above the c.i.f. price. Half this difference is attributable to factors external to the individual firm: the high price and erratic supply of raw materials.[20] The remainder is attributable to internal inefficiency and small production runs (*ibid.*). It has been calculated that Indian foundries and forges – at internationally competitive input prices (mainly of iron and steel products) and improved, achievable levels of internal efficiency – could sell their products at about 90% of the world price, thus strengthening the potential competitive position of the machinery sector.

LDC foundries and forges suffer from technical problems, partly as a result of the absence of earlier incentives to learn. One measure of the technical obstacles facing even an industry with a long history, such as the Indian foundry sector, is an estimate that 65% of foundries would require more than 5 years, even with substantial technical aid, to produce quality castings at international prices and another 25% would require from 1 to 5 years. Even if these periods could be reduced by more competitive pressure, they nevertheless indicate the retardation in learning introduced by previous trade restrictions. They also indicate the obstacles to establishing an efficient machinery sector, obstacles presented by technical difficulties ranging from procuring clean sand to the purity of heating material and to the use of unnecessarily large amounts of metal per unit of output.[21] Often the smaller companies simply do not understand enough of the production technology to produce high-quality products. To obtain such products, larger equipment producers frequently establish captive forges and foundries (World Bank, 1974b, 1978).

### (e) *Government policies*

Superimposed on the technical difficulties faced by a young mechanical-engineering sector may be additional difficulties induced by a policy designed to foster that sector's development. For example, in Korea and Mexico there has been an early emphasis on the encouragement of large-scale firms by using a variety of incentives, including low-interest loans and such favourable tax provisions as accelerated depreciation and investment credits. The outcome has been the purchase of equipment that is several-fold too large for the domestic market: although medium-sized firms may initially possess equipment that will be efficiently used with a doubling of demand, the larger machines may be initially used at a tenth of their capacity. Production is then saddled with high fixed costs, and an attempt is made to diversify the product range. This diversification often competes with the product lines of smaller and medium-scale firms, reducing the size of their production runs. There may thus be a downward filtration of excess capacity and a loss of the benefits of whatever specialization has occurred, increasing production costs for smaller firms.[22] Although this phenomenon is not limited to the mechanical-engineering sector, it is more significant than in the process industries, given the much larger range of products which can be manufactured with a given set of equipment and the larger set-up costs for each run.

Another policy-induced difficulty affecting the productivity of the machinery-producing sector arises from the appeal of restricting imports of machine tools in the early stages of growth of the typical capital-goods sector. One of the main requirements of an efficient capacity to produce capital goods is the use of machine tools of reasonably high quality: that is, cutters and shapers of metal which are used in the production of all equipment. Machine tools are one of the earliest types of capital-goods production begun in LDCs now exhibiting relatively high levels of engineering output. They are a tempting target for import substitution, given the large quantities imported; some types of machine tools, such as simple lathes and presses, are fairly easy to produce and can be used in repair work outside the equipment-producing sector and in the production of other machines. But the locally produced tools often are not adequate for the high precision characterizing much of the equipment-producing sector. This inadequacy does not present a problem as long as imported machine tools are available. But in some countries the pressure from domestic machine-tool producers or the desire of government to foster the more rapid growth of heavy industry has led to the licensing of all machine-tool imports.[23] Indeed government intervention most often leads to the initiation of production of more complex machine-tools.

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The import of machine tools often is permitted only when domestic producers certify their inability to produce the imports proposed. Under such a policy, machine-tool purchasers attempt to maintain an ability to import, while producers are likely to argue that they can match the foreign product. In their anxiousness to encourage new production, some governments may lend more weight to the claims of producers, at least until the effects on purchasers become apparent. In the interim the resulting inability to obtain high-quality equipment may retard growth in sectors outside the machine-tool sector. In such sectors many items are simpler to produce than machine tools, and those items enjoy a comparative advantage relative to machine tools.[24] The growth of the entire mechanical-engineering sector may thus be slowed by the premature emphasis on machine tools.[25]

The effect of restrictions on the import of equipment can be seen in the following description of conditions in Indian textile-machine production:

> With few exceptions, machine tools and equipment are 10–25 years old and in poor condition due to both difficulty of importing spare parts and bad maintenance. This is particularly so in the heavy machine tool sectors where little if any replacement has taken place. Single purpose, non-automatic light machine tools dominate throughout, with consequently variable operator workmanship. In the early 1950s, when most Indian firms commenced manufacture, machinery was of low speed simple construction and had remained virtually unchanged for the previous 50 years; for these models, and with abundant cheap labor, the original machine tools were adequate. In the early 1960s there was a revolution in textile machinery design leading to machines 3–4 times faster than 1950 models. Within a few years this sophistication in design had out-moded all existing machine tools, as tolerance became critical, and extensive investment in retooling became the order of the day in Europe and Japan. Indian textile machinery makers did not follow suit and today expect to manufacture modern products with obsolete machinery. This leads to lower quality. In a larger number of cases rejection rates are reportedly so high, that unless defects are overlooked and faulty parts used, production would be halted. The sad state of machinery has a disastrous cascading effect. Varying tolerance and modest operational ability necessitates intensive inspection. Usually costly remedial action has to be taken to patch up machines. Most machines have to be erected in plant and far too much filing was undertaken to ensure that all the parts fit. The lack of standardization is also a constant concern for textile mills since it is very difficult to find spare parts that fit their machinery (World Bank, 1975, pp. 20–21).

### (f) *Conclusions about comparative-cost structures*

The foregoing discussion of technological difficulties suggests that the low efficiency wages of LDC equipment producers are likely to be offset, at least partly, by a variety of inefficiencies related to production. It also suggests that the establishment of an integrated equipment sector, rather than a fabrication sector, is likely to be considerably more difficult than envisioned by those calling for the end of dependence on imported equipment and the technology it embodies.

In general the country studies surveyed in this paper suggest, despite the factors which decrease plantwide productivity per day, that the wage cost per unit of production in many products appears to be less in LDCs than in the developed countries. Whether this is sufficient to achieve a static cost advantage is not always clear. The following framework is useful for integrating many of the preceding strands into an arithmetically consistent framework. Denote the price of a machine by:

$$p = zw + p_k k + p_m m, \tag{1}$$

where $z$, $k$ and $m$ are the labour, equipment and material (measured in physical units) input per unit of output and $w$, $p_k$ and $p_m$ are the prices of these inputs. Let the subscript 2 represent a developed country and the subscript 1 an LDC. Then the difference in price is:

$$p_2 - p_1 = (z_2 w_2 - z_1 w_1) + (k_2 p_{k_2} - k_1 p_{k_1}) + (m_2 p_{m_2} - m_1 p_{m_1}), \tag{1}$$

and

$$(p_2 - p_1)/p_1 = [(z_2 w_2/z_1 w_1) - 1]\bar{w}_1 + [(k_2 p_{k_2}/k_1 p_{k_1}) - 1]\bar{k}_1 + [(m_2 p_{m_2}/m_1 p_{m_1}) - 1]\bar{m}_1, \tag{2}$$

where $\bar{w}_1 = z_1 w_1/p_1$ and similar terms represent the share in unit cost of each of the factors of production in the LDC. Equation (2) simply shows that the relative price of the product in two countries depends on relative physical productivity, $z_2/z_1$, and relative factor prices, $w_2/w_1$.

The evidence suggests that for products in which LDCs currently are competitive, that competitiveness is attributable to $w_1/w_2 < z_2/z_1$ – that is, the relative wage is smaller than the relative productivity of labour. On the other hand, $p_{k_1}$ is greater than $p_{k_2}$ because interest costs in LDCs typically exceed those in the developed countries, while the $k_2/k_1$ relation

Table 3. *Structure of costs for three classes of manufacturer, India*, 1974

| Element of costs | Percentage of total costs | | |
|---|---|---|---|
| | Efficient firms | Intermediate firms | Inefficient firms |
| Raw materials and components | 46.1 | 56.1 | 51.7 |
| Labour | 3.7 | 12.0 | 27.2 |
| Manufacturing expenses and overheads | 12.4 | 13.3 | 12.1 |
| Sales expenses | 9.8 | 6.0 | 1.6 |
| Depreciation | 5.1 | 2.6 | 0.8 |
| Interest | 2.5 | 4.0 | 5.3 |
| Profit before taxes | 20.4 | 6.0 | 1.3 |
| Total costs | 100.0 | 100.0 | 100.0 |

Source: World Bank (1975).

is ambiguous. LDCs may use less expensive general-purpose equipment, but their rates of capacity use are lower for reasons set out earlier.[26] Moreover, because of greater external uncertainties, requirements for working capital may be higher. In addition, most of the evidence suggests that material costs per unit of output are somewhat higher because of the lower physical productivity and higher unit costs of material in LDCs.

To illustrate some of the foregoing numerically, I present data about three groups of Indian textile machinery producers exhibiting high, intermediate, and low efficiency as reflected by their unit costs (Table 3).[27] The firms are described as respectively using: modern manufacturing methods, including training, layout, and equipment of recent vintage; 1940–1960 vintage equipment and methods to produce reasonably up-to-date equipment; 1940-vintage equipment to produce 1950-style textile eqiupment. The machinery produced by the first two groups is fairly similar and sells for roughly the same price; that produced by the third group, as would be expected, sells for a lower price.

The evidence must be considered from the perspective of both the producer and the purchaser. First, consider the producer. The most striking difference among firms is the large variation in labour costs attributable to differences in better equipment per worker – they are only partly offset by the higher depreciation charges – and to differences in layout, scheduling and so on. The study indicates that variations also exist in the productivity of labour in specific tasks, which reflect the more intensive training in the efficient group. That group also exhibits lower material costs. Furthermore, interest charges are greater in the less efficient firms, despite their lower fixed-capital intensity. Although this may be attributable to the more reliable supply sources of the efficient firms and their reduced need for inventories, it also is likely that the lower interest charges reflect smaller work-in-process inventories achieved by superior management.

The private profitability of the efficient firms appears to be high, as is evidenced by the ratio of profit to sales, but given the absence of the respective capital–output ratios, this is not certain. The general significance of these cost comparisons is that inefficient production largely erodes the potential cost advantages conferred by low wages of skilled labour.

The social inefficiency of the third set of firms and its product cannot be inferred from the data. To establish this inefficiency would require knowledge of the status of the textile producers using each type of equipment. It is possible that manufacturers adopting 1950-vintage equipment exhibit lower production costs, given the structure of input prices. Or, put another way, 1970-design machines may not be the least-cost method for at least some of the firms within the industry.

The same source provides another useful set of comparisons that allow some inferences about the cost competitiveness an LDC firm is likely to enjoy if it can largely eliminate *x*-inefficiency and operate at the international production frontier. This condition is satisfied by a Swiss textile-machinery producer and its Indian licensee. Both produce similar equipment: the Swiss firm is internationally competitive; the Indian firm has benefited from a detailed and rigorous training programme, so that its productive efficiency is, by a substantial margin, the highest among the large number of Indian textile-machinery producers. The figures in

Table 4. *Structure of costs for similar Swiss and Indian companies*, 1974

| Elements of costs | Composition of total costs | |
|---|---|---|
| | Swiss company | Indian company |
| Labour | 11.0 | 2.2 |
| Raw material | 40.0 | 28.0 |
| Overhead and non-production salaries | 18.0 | 7.3 |
| Sales expenses and royalties | 7.0 | 6.0 |
| Depreciation | 7.0 | 3.0 |
| Interest | 4.0 | 1.5 |
| Profit before tax | 15.0 | 12.0 |
| Total costs | 100.0 | 60.0 |

Source: World Bank (1975).

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Table 4 show a cost comparison for a 'typical' machine produced by both firms.

Production wages and non-production salaries and overheads accounted for the largest part of the differences in cost. Part of the raw material difference is transitory, reflecting the temporarily lower price of Indian steel in relation to European steel at the time of the analysis. Even with basic metals at world prices, however, the Indian firm would continue to enjoy a cost advantage because of the lower costs of its efficient casting and forging suppliers. The data reflect the classical argument for the competitiveness of LDC equipment producers: the Indian plant is considerably less mechanized, as is evidenced by the combined depreciation and interest charges; it uses at least 50% more labour in production. But the Indian wage level is less than a tenth that of the Swiss, and an intensive training programme has resulted in high labour productivity and hence a low efficiency wage. Nevertheless, when the price difference of the final product is disaggregated according to equation (3), costs of direct labour at most account for 10% of the final price difference; differences in costs of material and capital each account for roughly half the remaining difference.[28]

## 3. EVIDENCE OF DESIGN ADAPTATION TO DOMESTIC FACTOR PROPORTIONS

Before proceeding to the evidence, I will briefly discuss some of the issues related to innovation. The market wage–rental ratio, however distorted it may be relative to a social optimum, is considerably lower in the principal LDCs producing equipment than in the developed countries. If it is assumed that purchasers of equipment are interested in reducing their production costs, the derived demand for locally produced machinery should lead to equipment and processes that are more labour-intensive.[29] Nevertheless the rather thin evidence on the existence and extent of adaptation of *designs* by LDC capital-goods producers does not verify this expectation. The alternative for responding to local factor prices – production of vintages of equipment no longer produced by more advanced countries – is more widely confirmed, but here, too, the evidence is sparse. Both mechanisms for adjusting to different relative factor prices are discussed together, though there are important differences between them.

There are two sets of evidence on which to draw. First, there are detailed studies of particular LDC sectors, such as the Indian textile-machinery industry. Because these are focused on machine production, considerable information is available about the character and significance of technical design changes of the final product as well as the production of older designs, usually under licence. These studies tend to focus on larger producers, about which more is known. Thus any inferences drawn are perforce limited to this class of firm. A second set of studies describes the design activities of LDC equipment producers as a by-product of other interests, including analysis of export performance, the choice of technique in machine-using industries, and the efficiency of small-scale enterprises.[30] Neither set is systematic in product coverage or in evaluating the economic significance of design changes. They consequently permit only tentative inferences.

I shall limit my discussion of design adaptation to major changes in the factor proportions that characterize equipment produced by LDC firms. Other types of innovation, such as increased efficiency of material use or adaptation to local materials, are important as well. Indeed numerous small innovations that reduce the input requirement per unit of output, regardless of their factor bias, may ultimately be of great economic significance. The two types of innovation are undoubtedly related.[31] In a somewhat different vein, if LDC producers replicate the equipment of developed countries at lower prices, a reduction in capital intensity is thereby achieved. These extended issues require separate treatment, however, and there currently is little systematic evidence on them.

The predominance of information on the activities of large producers almost certainly introduces a bias toward observing limited adaptation of factor proportions. Purchasers of their

equipment are likely to produce for the protected segment of the domestic market; they consequently face weaker incentives to obtain the cost advantage that more labour-intensive equipment would confer. In addition, larger machine-producing firms often receive their designs through licensing. These two aspects of the demand and supply of designs are related. It is unlikely that such extensive use of labour-saving designs of developed countries would be profitable if the ultimate users faced more competitive markets. In turn, the availability of those designs and the higher costs associated with their use may have generated pressures for protection from the machinery-using firms.

Smaller producers of equipment are more likely to sell to firms facing competitive factor and product markets and, as a result, to undertake greater adaptation of imported designs or to produce their own. Thus the following summary, which often is pessimistic about the ability of LDCs to engage in factor adaptation and their interest in that ability, may be too gloomy, because efforts of small firms may have been overlooked.[32] In a different environment for larger firms, more appropriate machinery might be forthcoming. As I will argue later, this outcome is far from inevitable.

Production can conveniently be classified by the source of design. Large firms tend to rely on licences; smaller firms on copying existing equipment. Licensed production of unaltered equipment will broaden the spectrum of choice over time if the LDC firms do not modify their initial designs when the licensor does. Two Indian loom producers offer an example: one manufactured a Swiss automatic loom of the late 1950s and early 1960s; the second a semi-automatic loom according to a 1950 Japanese design. The price of the semi-automatic loom was about 35% of that of the locally produced automatic loom, which in turn was cheaper than Western European looms then available (World Bank, 1975). The purchase by local firms of these looms rather than more modern ones is attributable to two circumstances: the sporadic availability of the high-quality yarn necessary to realize the fast speeds of more modern looms; the lower initial equipment cost and low wages in the cotton-textile sector. Similarly, South Korean companies continue to produce semi-automatic looms, which are extensively used in the domestic textile industry to produce for both the export and domestic markets.[33]

Relying solely on equipment of older vintage, though an important option for producers in the short or intermediate term, has important limitations. Continued design improvement by machine producers in the developed countries, not at least partly offset by similar activity in the LDCs, may lead to a situation of technical dominance in which the equipment produced in developed countries is less expensive to use, regardless of relative factor prices. But reductions that can be achieved in the cost of production by eliminating some of the inefficiencies discussed in the preceding section may permit price reductions that allow LDC-produced equipment to continue to be competitive for a longer period.

Design research may be less important for smaller local producers that typically do not rely on licensing. Their evolution may reflect the differences in creative ability as well as their links to the more competitive sectors of the economy. There are some instances of companies modifying imported designs, upgrading them, and producing a machine that permits a lower capital–labour ratio in the using sector. For example, Argentine companies are currently producing food-processing equipment that is less mechanized than advanced-country equipment designed for the same product; so are a number of Pakistani companies (Cortes, 1978; Pakistan, 1976). In these two instances there unfortunately is no evidence of whether the adapted equipment is economically efficient. Other pieces of evidence indicate that smaller firms in many countries, usually not manufacturing under license, have produced simple equipment that often is used for the production of goods whose quality is too low for international trade.[34]

What, then, is the evidence on LDC innovation? In a systematic series of studies of alternative production methods that could be used to alter factor proportions – studies carried out by the Livingstone Institute at the University of Strathclyde – LDC-produced equipment provides a principal source of the increased range of choice in only a few sectors, most notably in maize milling.[35] In others, most of the central processing equipment was designed and produced in developed countries, though some of the simpler structural components of the production process, such as vats, were locally manufactured. Moreover, in other studies of the choice of technique, the expansion of the range of choice arises from currently produced Japanese equipment or older vintages from developed countries, but rarely from LDC production.

Although the evidence is far from extensive, the ability and interest in *major* design alterations – to increase labour intensity or to

augment the efficiency of labour-intensive alternatives – does not characterize most LDC capital-goods producers. This characteristic undoubtedly is partly related to the more general absence of research activity, which will be discussed later. In addition, it may reflect the fact that most of the principal LDC producers have pursued policies of intensive import substitution, which could well have decreased the derived demand for adapted machinery.

A comparison of textile-machinery production in Korea and India is instructive in assessing the effect of differences in derived demand. Both countries have a fairly substantial capacity to produce textile machinery, with India's spanning a broader spectrum from spinning to finishing. Korea produces semi-automatic and simple automatic looms; the principal Indian firms manufacture modern labour-saving equipment. This discrepancy can be plausibly attributed to the protected position of Indian textile producers, whereas the Korean textile industry has been export-oriented from its inception. Although there is limited pressure on Indian producers to reduce costs by using more labour-intensive equipment, the pressure is greater on Korean producers, who in turn demand labour-intensive equipment.

It is not possible, by using existing sources, to pursue this hypothesis much further. Korea s machinery sector is too recent in origin and produces too small a range of products to allow any more general verification. A closer look at the sources of equipment for other rapidly growing export industries would be of considerable interest. It should be noted, however, that the Korean loom manufacturers have used conveniently available Japanese models as the basis of their design. They have not engaged in research on local adaptations of design. So far there is limited evidence of such activity, but its potential emergence provides a rationale for the encouragement of the machinery sector.

## 4. SOME HYPOTHESES ABOUT THE RESEARCH PROCESS

There are numerous descriptions but few systematic studies of the extent or absence of research on design in the capital-goods sector and other sectors of the LDCs here considered. The most general impression conveyed by the existing studies is the absence of product research; but this impression may partly reflect the disproportionate attention analysts have given to publicly funded research institutes, in contrast with the activities of firms.[36] The limited evidence on firms suggests that if a research staff exists, it most often is devoted to questions not related to design.[37] If this is assumed to be the case, some tentative exploration of the reasons for the pattern may be useful.

The pursuit of import substitution may discourage design efforts but encourage other cost-reducing activities. Because of the restrictions on imports, the unpredictability of licensing procedures, and the insistence that firms achieve specified levels of domestic content, it may be profitable to employ research personnel in three activities: identifying local sources of raw and intermediate materials; identifying and upgrading potential local suppliers; and improving technical processes within the firm. In fact these are reported to be principal activities of many engineers and technicians employed in research and development.[38] But if a firm has a research budget, the allocation to that budget should equate the marginal return from design with the return obtainable from responding to policies dictated by import substitution. There is little reason to believe that the marginal returns from the latter systematically exceed the former. Other explanations are needed.[39]

In its simplest form a firm's calculation of whether to allocate some of its research budget to design should weigh the costs of achieving a given objective by carrying out its own research against those of acquisition through licensing. Given the scale economies in research, the relative DC/LDC endowments of research personnel, and their relative efficiency as a result of past learning, it is likely that a one-time objective can be achieved more cheaply by licensing. However, the cost-minimizing solution is less clear with respect to continuous acquisition of innovations. The potential learning and the consequent reduction in research costs must be considered.

The ability to evaluate correctly the wisdom of licensing as opposed to own research will depend on some prior experience in research to allow the calculation of the likely costs of internal development. Familiarity with the relevant licensing options and their evaluation will also depend on a strong technical and economic staff, whose skills may be a function of previous research. Thus even the choice noted between licensing and own research undoubtedly is too simple: it ignores the investment required to structure the decision correctly and the effect of current research on the cost and effectiveness of future research. These dynamic considerations would militate in favour of more

domestic research than would a purely static calculus.[40] However, countries following policies which impose outright prohibitions on imports of machines similar to those produced domestically or impose high tariffs on them almost surely induce their own equipment-producing companies to follow the static strategy; the producers need not worry about domestic competition from new DC designs as they will be kept out. Hence, the need to innovate is reduced.

Nevertheless, in a large market (such as Indian textiles) it might be supposed that sufficient scope exists for purely domestic competition to elicit research as one means of improving market shares in the typically oligopolistic machine-producing industries.[41] The absence of such efforts in the large, well-established Indian textile machinery industry has been carefully described in two recent studies.[42] While the simplest explanation, that the existing companies are enjoying 'reasonable' profits and are willing to satisfice behind high protective walls, is undoubtedly partly true, an alternative explanation is equally plausible and more fully incorporates the behavioural options faced by firms.

If one firm does innovate, will it in fact realize higher profits? To maintain their market shares the other firms may request of their licensor some new design improvement which would yield the same increase in PDV as the domestically designed characteristic. Even if the royalty rate for this new feature is relatively high, it may well be less than the development costs of the research-oriented innovator. Rapid licensing and copying may be the profit-maximizing strategy.[43] Thus, the overhang of DC innovations and the comparative advantage of the DCs in generating them, may well reduce the incentives to LDC research in an import-substituting milieu.[44]

If the foregoing sketch of the probable effects of the overhang in developed countries of a large body of innovations and effectiveness in generating further ones is even roughly correct, the relatively small amount of design research in the engineering sectors of LDCs becomes easier to understand. It also would help to explain the paucity of labour-using innovations: a firm successfully undertaking such research, which increases the present discounted value of a given machine in the user-industry may find its competitive edge removed by rivals that purchase licences that increase the present discounted value of their equipment. A labour-using adaptation might be matched by a rival's ability to incorporate material-saving features or higher speeds. The rival need not compete in labour-saving. Although a complete analysis would depend on the licence fees, the 'shelf' of licences available in developed countries, and the intensity and bias of innovation by the local firm, it is possible that successful local innovators would not realize greater profits from adaptive research.

In addition to the discouraging effect of the stock of accumulated DC innovations, the low level of formal research may be attributable to the myopia of firms, to the capital market imperfections facing even the largest LDC firms, and to risk aversion. Public intervention to foster local technical development can be justified on all of these grounds. There nevertheless is the possibility that LDCs may suffer from a comparative disadvantage in research and development, and the case for public aid should plausibly demonstrate that the appropriately discounted value of benefits from the local effort will exceed the discounted costs. The benefits should be defined to include additional income obtainable from the given investment if the local sector produces more appropriate equipment than suppliers in developed countries. If technical independence is viewed as a good in itself, no such calculation need be made, though I suspect that behind such views lies the intuition that infant-industry arguments about technology development are valid.

## 5. REQUIREMENTS OF COST EFFICIENCY AND DESIGN INNOVATION

The long-term competitiveness of LDC capital-goods producers depends on activities related to two capacities: reducing excess production costs attributable to the types of inefficiencies cited earlier; undertaking research and particularly altering designs. Research to reduce the production costs of an unchanged product usually is termed *process research*; efforts to alter design, *product research*. In the production of equipment the two are related because process research, by lowering the price of a machine of a given design, alters the technical choices facing purchasers. Some recent accounts of the experience of Latin American industrial producers, all in the non-engineering sectors, document considerable process innovation.[45] If this is found to characterize the engineering sector as well, it is of some importance because declines in the price of capital goods constitute a capital-saving phenomenon for the entire economy.

Some of the excess production costs attributable to inefficiencies will be ameliorated simply

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through greater experience and a growing level of output; others will require special efforts. Labour productivity on set tasks with given equipment is likely to improve over time; a number of studies have demonstrated that the physical labour input per unit of output in the engineering sector declines with cumulative experience.[46] Plant-wide productivity should also grow as a consequence of an increase in the output of individual plants, assuming that this inrease permits greater utilization of special equipment and labour. In addition, augmented organizational experience should increase the ability of both the firm and the sector to gain from subcontracting.

Inefficient practices – the absence of conversion guides for machine operators, the misuse of existing machinery, and the problems of layout – are likely to require explicit expenditure to obtain the requisite knowledge. Although competitive pressure can provide a more receptive atmosphere for the diffusion of the improved practice, attention to improving the institutional mechanisms will shorten the learning process. Reducing these performance gaps requires visits to foreign plants, the use of external consultants, and the upgrading of both firm level and industry-wide research organizations to augment the knowledge of the best practice.[47]

In the longer term the LDC producer must compete not only in cost but in design. The engineering sector in developed countries engages in a considerable amount of research. This leads to a steady flow of improvements which reduce operating costs at the input prices in developed countries. Such alterations are relevant to LDC producers, particularly those producing equipment under licence. The licensee generally will not be able to obtain complete information on new improvements that the licensor makes to enhance the performance of equipment, often without an increase in price. Moreover these improvements frequently are not labour-saving in the sense of requiring fewer workers per machine. Instead the speed of the machine or its efficiency in using materials is increased. Depending on the price of the newer machine, potential buyers may prefer the newer design because a given investment expenditure will result in a larger present discounted value. Thus, even if the LDC firms initially can match or undercut the international price, there is an inexorable attenuation of their initial cost advantage, unless their product is upgraded.

The difficulties posed by the need for product upgrading are not, of course, specific to the capital-goods sector. Any commodity whose characteristics are constantly being changed will face the same difficulties. This, then, is another problem in comparative advantage, which includes research ability among the endowments. Product-cycle theorists who have considered similar questions typically conclude that, after the technical shakedown and the routinization of production, a country's comparative advantage in traditional factors will eventually determine the efficiency of production. The difference, however, between the goods considered by the product-cycle model and capital equipment is important. In the first, after an invention occurs, a product with fairly unchanging characteristics is produced. Once a niche in the structure of consumption is established, the consumer product is not quickly replaced. Research in the developed countries does not directly undercut its sales, unless very close substitutes are produced. On the other hand, newer equipment, producing as it does the same output, can completely replace unimproved equipment once the present discounted value of the earnings stream of the former exceeds that of the latter. Indeed the research-intensive phase early in the product cycle continually characterizes the capital-goods-producing sector, which is innovation-intensive.

The necessity of newer designs in the longer term is not limited to the requirements of the export market. Domestically produced equipment may initially be available at lower cost than imported equipment. But if foreign companies improve the design of their equipment more rapidly than local ones, a point will be reached at which production costs arising from the use of locally produced equipment will exceed those associated with imported machinery. Unless the domestic engineering sector is protected, purchasers will gravitate towards imports, and the sector will exhibit

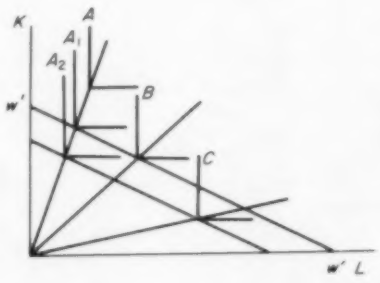


Figure 1. *Choices facing equipment users.*

stagnant production and excess capacity, much as the Indian textile-machinery sector has done.[48]

The need for research is likely to be greater if the LDC industry has not adapted the factor proportions of the equipment. The reason is that research in developed countries is localized in the more capital-intensive part of the isoquant. But even if local designs are used, the need to offset the effects of new improvements from abroad will eventually occur. As long as domestically produced equipment is used in the production of commodities whose production is also possible with imported equipment, efficiency will eventually require domestic producers to meet this competition. These considerations can be conveniently summarized in Figure 1.

Let $A$ denote the initial unit isoquant in the developed country, $B$ the somewhat more labour-intensive isoquant achievable by LDC-produced equipment, and $w'w'$ the initial wage–rental ratio. Initially minimum costs are achieved by producing with type-$B$ equipment. If $B$ remains unchanged, while $A$ moves toward the origin as a result of ongoing research, the two techniques yield equal costs when $A_1$ is reached.[49] Any further improvement leads to type-$A$ equipment becoming cheaper, even at LDC costs. It can also be seen that if considerably more labour-intensive processes, such as $C$, are available, say reflecting indigenous designs, these will remain competitive for a longer time, until $A_2$ is achieved. But even $C$, an indigenous technique, will eventually be displaced, unless it can be improved.

The role of cost reductions for LDC producers, as opposed to design changes, could be shown by a vertical, downward shift in $B$ or $C$. The lower price lengthens the period over which LDC-produced machinery is competitive. It also has a second benefit: reducing the capital–labour ratio of equipment of a given design.

Figure 1 can also help to clarify one argument that has been made in favour of establishing and strengthening LDC capital-goods production (Pack and Todaro, 1969). One of the potential benefits is the ability to produce technologies that are outdated in the advanced countries (such as 1960-vintage food-processing machinery) but economically efficient in some LDCs, given their factor–price configurations. It is plausible that such ability provides more control over 'technical destiny' than would extensive purchases of used equipment, the sole reliance on which would require an importing nation to continually modernize its equipment, paralleling the process that occurred, say, 15 years earlier in the advanced country. Premature modernization dictated by the diminishing supply of older-vintage equipment, whether new or used, will raise production costs in the purchasing country.[50] Equipment built to exploit the cost structure of US manufacturing in 1960 may remain too capital-intensive for Tanzania for many years, and a gradual, forced modernization increases the discrepancy. Thus LDC production capable of replicating earlier vintages presents an attractive potential for achieving a desirable rate of technical upgrading. As Figure 1 implies, however, the world is not this benign. Unimproved versions of $B$ or $C$ may not be competitive for very long, though this is an empirical question about which little is known. The desired goal – obtaining some indigenous control over the rate of introduction of technology – will surely be conditioned by the continuing design progress by equipment producers in developed countries. Without significant abilities to reduce costs and achieve design improvements, the scope for controlling a nation's technical evolution is limited.

A simple numerical example helps to illustrate some of the orders of magnitude. Assume that equipment types $A$ and $B$ exhibit the following simplified characteristics per unit of output:

| Type of equipment | Cost of equipment ($) | Number of operatives required annually |
|---|---|---|
| $A$ | 15,000 | 1 |
| $B$ | 5000 | 5 |

Assume that the only costs of production are depreciation, interest and wages, and that the annual physical output of both machines is identical. If the purchasing country has an annual wage of $400 and an interest rate of 20%, and if the equipment has a life of 15 years, the annual costs of production, assuming straight-line depreciation, are:

| Type of equipment | Capital cost ($) | Labour cost ($) | Total cost ($) |
|---|---|---|---|
| $A$ | 3208 | 400 | 3608 |
| $B$ | 1069 | 2000 | 3069 |

If type-$A$ equipment, produced in the advanced country, shows a 3% annual decrease in both capital and labour costs while type-$B$ equipment

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remains unimproved, the total cost of production for the two types would become equal after about 5 years. But if the capital cost of type-*B* equipment can be reduced by 25%, it would remain less expensive to use for an additional 3 years. Gains in internal efficiency clearly can delay the day of reckoning, but the absence of research to improve equipment limits long-run prospects.

Three characteristics affect the determination of the year in which the catching up occurs:

- the initial capital–labour ratios of the two types of equipment;
- the relative factor prices paid by potential purchasers;
- the relative rates of 'net' improvement in equipment performance: that is, the increase in equipment price minus the saving made possible in labour and material inputs.

If an LDC decides not to compete with the developed countries in their own product lines, it should do two things: emphasize machines in which the difference in characteristics between its equipment and that of developed countries is considerable; search for markets in which the ratio of wages to the cost of capital is low.[51] Even by following this programme, however, improvements that reduce the cost of using LDC-produced equipment must eventually be generated. Thus, under the optimistic assumptions of our example – no wage increase and an initial machine price a third that of the developed-country machine – the initial cost advantage is eroded after only 5 years if no LDC improvements are forthcoming.

The arithmetic example obscures one critical point about which little is known: the development of prices relative to cost-saving characteristics in the industry in developed countries. If design modifications increase the present discounted value of production with a machine because productivity improvements are not reflected in commensurate increases in the price of equipment, unimproved machines will, other things being equal, command a lower price. At the extreme, if the price of equipment of developed countries does not increase, the range of effective choice faced by purchasing industries will be increasingly narrow. Ultimately the equipment of developed countries may dominate that of the LDC. But if the cost of equipment increases in step with the rise in machine productivity, the LDCs will be under less pressure to do research.

The reason for my earlier emphasis on possible sources of cost reduction in LDC equipment production should now be clear. In the absence of a design ability, LDC companies may forestall for a time the loss of competitiveness by reducing the costs of production through process research. But the potential efficiency gains from such improvements incur some costs and are exhaustible. Reorganizing the flow of work, improving maintenance, and cleaning the sand from casting-shop floors are once-and-for-all changes, though they may have large, cost-cutting effects.[52] Eventually more fundamental efforts will be required to increase competitiveness, particularly by design changes. By maintaining the short- and intermediate-term competitiveness, however, disembodied efficiency gains can allow the gradual buildup of the requisite research capacity.[53] Building up that capacity of course is a major undertaking that ranges from training technical personnel, to establishing institutions in which they are usefully employed, to developing institutes of weights and measures.

## 6. EXPORT MARKETING

The focus of the foregoing discussion has been on production in the capital-goods sector. Other issues, particularly those associated with marketing, have been ignored. For most LDCs, however, exports, will be instrumental in the development of the sector. For capital goods for which long production runs are typical in the developed countries, exports will be necessary to achieve economic levels of production; for products for which small batches are the rule, exports are desirable to increase the average rate of use of productive capacity in the face of fluctuating domestic demand. Furthermore, in countries whose success in exporting traditional consumer goods has led to increasingly restrictive import policies in purchasing countries, a change to a strategy emphasizing engineering products offers an alternative in the intermediate term. Indeed, in their most recent plans, Korea and Taiwan emphasize the importance of engineering industries as a source of continuing rapid rates of export growth.

Trends in the destination of LDC exports are a bit surprising. For the most recent years for which data are available, about half the capital-goods exports of LDCs have been to other LDCs, despite the much larger market in developed countries. Given my earlier argument, it seems unlikely that much of such trade occurs because of the sale of industrial equipment which is more appropriate – that is,

labour-intensive. Instead it appears that a principal reason is the price competitiveness of such standard items as valves, ball bearings, and diesel engines included in the 'capital-goods' category. Industrial machinery that has been adapted does not loom large in trade between LDCs. Similarly the exports to developed countries seem to consist primarily of simple standardized items rather than complex industrial machinery.

The pattern is likely to continue for several years. As was seen earlier, research on industrial machinery in the developed countries militates against LDC products, though this advantage may well be eroded as various countries improve their design capacity. Equally important, however, is the difficulty of marketing industrial machinery. At the risk of oversimplification, the successful LDC exporters, especially in East Asia, have concentrated on standardized consumer goods. In such industries as textiles, clothes and wigs, the product often is completely planned by the ultimate importer in the developed countries. In the production of clothing, for example, it is not unusual for the importer to specify the designs, choose the materials, colours and sizes, and completely finance the working capital requirements of the producing company. In addition, the entire selling effort in the importing nation is carried out by the buyer. Such countries as Korea and Taiwan have locally-owned trading companies that carry out similar functions, but rarely have local producers had to assume the entire marketing effort from design to sales in the developed countries.

In contrast, selling capital equipment to businesses is a much more complex operation. Purchasers do not descend upon a country in hope of finding a bargain. Indeed low prices seem to generate some doubts about the quality of the equipment. Success in foreign markets depends much more on the efforts of individual producers or their trading companies to identify trends in products and markets. Extensive networks for overseas sales and servicing need to be established, and even the mature LDC producers have had little such experience. Furthermore the ability of equipment producers to extend credit and provide performance bonds is a critical feature in any export drive. Until recently there has been only a limited effort in such areas not related to production. In the light of these considerations, the engineering products most likely to be exported in the next 5 or so years are those similar in their marketing requirements to the standardized products already being sold, such as textiles. It should be noted, however, that Argentina has recently been successful in selling limited quantities of turnkey plants, primarily to countries of the Latin American Free Trade Area. Whether these sales can be replicated outside this protected environment remains to be seen, though they are an encouraging sign of a new stage of development (Katz and Ablin, 1978).

The character of marketing may explain, particularly for new products, why most LDC producers focus on the industrial-machinery market in the developed countries. In particular, there are likely to be scale economies in identifying markets, tailoring products to specific countries, and establishing sales and servicing networks. Once the major costs of these activities have been incurred, considerable increases in sales should be possible without commensurate increases in costs. This characteristic militates in favour of concentrating on large markets, not the smaller markets typical of LDCs.

Marketing costs also impinge on some questions discussed earlier. They may shift the efficiency balance toward large firms, even in product groups in which scale economies in production are not to be found and are likely to militate against adaptive behaviour in design. If an LDC firm were to design more labour-intensive equipment, the cost of successfully selling it in other LDCs could reduce the net profitability of the design–production–marketing operation below that of sales of unadapted machines to the developed countries. Although this result is not inevitable, it provides still another reason why adaptive designs have not yet become an important activity in LDCs. It may also explain the reported reluctance of a number of Indian machine-tool producers to undertake a sustained sales effort in any but the large LDCs (Frankena, 1971). Many Korean manufacturers of industrial equipment appear similarly diffident about entering the African market.

## 7. IMPLICATIONS FOR POLICY

Production in the mechanical-engineering sector may provide an efficient growth opportunity for some of the more advanced LDCs if a variety of cost-increasing features do not offset the advantages accruing from lower costs of skilled labour. But the sector's competitiveness in the long run requires, in addition to improvements in static efficiency, greater effort and success in improving machinery design.

Specific policy measures to increase static efficiency depend on the source of the

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inefficiency. It is useful to emphasize the distinction between cost-minimizing responses to existing relative factor prices and to such *x*-inefficient practices as unnecessary overcrowding in the placement of machines. Only the latter are of policy interest, but only in so far as increased competition, particularly from imports, is insufficient to reduce *x*-inefficiency with socially optimal rapidity. In this case *x*-inefficiency may warrant establishment of an industrial extension service, efforts to provide technical materials in translation, and encouragement of visits by local personnel to foreign factories or by the representatives of those factories to the local industry.

The financing of these activities depends on the organization of the sector. If there is a large number of small and medium-sized firms, it is likely that some learning will be diffused to firms that are not direct recipients of technical aid. The externalities generated by this diffusion may justify subsidization, if the conventional benefit–cost test can be met. But if the organization of the sector is oligopolistic, as in several of the countries currently active in capital-goods production, any externalities will extend to only a small group of firms. It would then seem appropriate for the costs of improving efficiency to be borne by these firms.

If it can be assumed that the evidence accurately conveys the paucity of domestic research activity, it may be desirable for the public sector to act as a catalyst for such activity. The character of the actions required can be arrayed along a spectrum from implicit technology policies – those working indirectly through changes in economic policies – to such explicit policies as the subsidization of training of engineers or the establishment of research institutes. Because the desirable mode of intervention is likely to differ significantly by country, no universal recommendations are applicable.

In countries already possessing significant numbers of research personnel and laboratory facilities, implicit policies may be the only ones required if the existing incentive structure, particularly the tariff regime, leads to suboptimal levels of research. For example, a more competitive environment in the machinery-purchasing sectors may stimulate a demand for local adaptations of imported designs or for wholly new designs. Or the removal of import restrictions, whether these be quotas or high tariffs on sectors supplying the machinery industry, would enable qualified personnel to engage in research rather than concentrate on bringing suppliers up to the standards required.[54]

Other policies short of direct intervention may also affect decisions about research and development. Of particular note are the tax treatment of licence fees and the limits on the magnitude and duration of such payments. If the ready availability of licences at relatively low prices is perceived to reduce research and development below desirable levels, policies could be designed to raise their net cost or make them more difficult to obtain, though implementation may be difficult.

Explicit technology policies include those related to the acquisition of hardware, the subsidization of operating expenses, and the subsidization of training for scientists, engineers and technicians. In addition, a variety of institutional mechanisms can be used to implement the actual research, ranging from government-owned and industry-wide institutes to subsidies for research by private firms.

It seems likely that the newly industrialized countries, such as South Korea and Taiwan, may require a greater emphasis on explicit policies because of their relatively small endowments of research personnel and facilities. Such countries as Argentina, Brazil and India, on the other hand, are more likely to derive relatively large benefits from changes in economic policies. Just as for measures to increase *x*-efficiency, it is desirable to avoid public-sector financing of activities that the private sector should find profitable, unless there is strong evidence of significant capital-market imperfections or excessive risk aversion. It also is important to note that the subsidization of research is simply a variant of infant-industry encouragement and should meet the same tests as those for commodity production.

Two other policies are desirable. First, barriers to the import of high-quality machine tools should be removed. Although a relatively low uniform tariff may be used to protect the entire machinery sector, prohibiting the import of machine tools vital for achieving high-quality output is counterproductive. Second, given the complexities of marketing producers' goods, some aid may be justified if lumpy investments prevent individual firms from establishing sufficiently large marketing efforts. Again, it is necessary to avoid financing activities that the private sector should find profitable.

Finally, some observations can be made about the choice of additional products. Most of the LDCs considered in this survey already produce a fairly large range of capital goods. Any expansion of production would best be concentrated in products exhibiting two characteristics:

first, current production techniques should not require competence in advanced sciences, such as metallurgy, or in particularly difficult production technologies; second, the product should not be undergoing rapid design changes. An activity that conforms to both guidelines is the production of standardized components that producers in other countries can use: bearings, gears and fasteners are examples. Similarly, structural items, such as beds for machine tools and frame bodies for engines, could be manufactured. All these product lines require an achievable level of upgrading in foundries, forges and stamping operations but no major improvement in metallurgical or design skills. In addition, expansion of these product lines provides an interim source of export earnings as well as an incentive to achieve greater competence in fundamental skills whose labour-intensive character must provide much of any comparative advantage based on the low wage rates for skilled labour.

## NOTES

1. The existence of a spectrum of firms of varying size may partly reflect the production of different commodities within the 4- or 5-digit industrial classification, with each individual product being produced by a narrower range of firms (by size) than appears in the broader grouping. If this is the case, the potential comparative advantage in LDCs would be in product lines for which the average firm size is small.

2. For an elaboration of this as well as other possibilities that militate in favour of the establishment or expansion of LDC capital-goods production, see Pack and Todaro (1969). These are only possibilities, however, and their realization must be checked against available evidence. See the discussion of the requirements of cost efficiency in the next section.

3. Despite distorted relative factor prices, wage–rental ratios in India or Pakistan remain considerably below those in the developed countries. This does not imply that the only way to achieve lower production cost is through the use of more labour-intensive equipment; it is possible that cost reductions in the equipment using industries may be realized by innovations that improve the efficiency of material use or permit higher quality to be obtained from operatives with limited skills. A good discussion of the objections to the induced-innovation hypothesis and useful modifications of the theory are given by Binswanger in Binswanger *et al.* (1978).

4. The ability to modernize is a central issue. It will be considered in the section on the requirements of cost efficiency and design innovation.

5. Turnkey plants are integrated factories designed by equipment producers or consulting engineers.

6. See the survey by Murphy (1967) and many of the papers contained in Rosenberg (1976).

7. The studies drawn upon are listed under country headings in the bibliography.

8. A number of complex issues analysed by Lamyai *et al.* (1978) are omitted here because an adequate treatment would take the discussion too far afield. For example, sufficiently large batches of a single product may warrant changing the entire production process – say, substituting special-purpose equipment for general-purpose equipment, and concomitantly decreasing the relative importance of skilled operatives – rather than simply lead to reduced costs for a given regime.

9. Among the studies relevant to worker productivity is one on the machinery industries in Korea (World Bank, 1978) and others on foundries (World Bank, 1974a), steel forging (World Bank, 1974b), and textile machinery (World Bank, 1975) in India.

10. A graphic description of some poor working conditions is provided in the study of machinery industries in Korea (World Bank, 1978, Chap. 3). Many of these conditions also affect the productivity of the capital and material inputs.

11. For an example see the study of forging in India (World Bank, 1974b, pp. 16–17).

12. For a detailed discussion and sample computations see Lamyai *et al.* (1978). In relatively inexperienced firms the organizational costs of managerial time necessary to realize such sharing may offset some of the technical economies so that the reductions in direct production costs are greater than the net decrease.

13. Such benefits may also accrue to the captive operations of firms; the existence of extensive subcontracting in advanced countries suggests that learning is likely to be greater in more specialized firms.

14. Also see Pakistan (1976), Vol. 2, p. 103.

15. As the study of foundries in India shows, import restrictions may also encourage internal production of components most cheaply secured abroad (World Bank, 1974a). See the later subsection on government policies.

16. An excellent discussion of conditions that may have fostered the evolution of subcontracting in Japan can be found in Watanabe (1978).

17. This assumes that low-volume, labour-intensive production can result in prices competitive with high-volume, mechanized processes.

18. This comparison does not establish a presumptive case for comparative advantage, which depends on the relative factor intensity across sectors of the Indian economy.

19. The annual turnover of inventories in Indian forges is 1–2; for companies in developed countries it is 6–8 (World Bank, 1974b; Frankena, 1971).

20. Steel accounts for 40–50% of the price of forgings and castings, and in the early 1970s India's steel was selling at 50–60% above world prices. Similarly, high costs and their adverse impact are found in other country studies: for example, that on the manufacturing sector in Mexico (World Bank, 1977, pp. 20–21), and that on the engineering industry in Pakistan (Pakistan, 1976, Vol. 2, p. 290).

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21. See the studies on manufacturing in Mexico (World Bank, 1977, Vol. 2, pp. 13, 14, 18, 19); foundries in India (World Bank, 1974a, p. ii); and machinery industries in Korea (World Bank, 1978, Chap. 3). A typical finding in the third study is the following: 'In Korea it is common to find the forging blank weighing two to two-and-a-half pounds per pound of the net weight of the forged part. The wastage of material is twice or more that occurring with good practice' (*ibid.*, p. 78). Similarly in closed die forging there usually is some extra metal (flashing) remaining, which is removed with a trimming press. In many Korean forges it was noted that the flashing was so thick it could not be shorn and a torch was needed. 'This is a slow process and leaves the forged part in a very rough state so that at the next operation in the machine shop a great deal of machine time is necessary in order to put the part into finished shape' (*ibid.*). One interesting possibility noted in the study of technical development in Argentina is that a faster technical upgrading may occur if supplier industries initially sell to high-quality producers of consumer durables such as automobile manufacturers (Cortes, 1978).

22. Once the large-scale capacity is in place, the social costs of producing a given level of output may be lower as a result of filtration: that is, the reduction in costs by larger firms may exceed the increase imposed on the smaller ones. The critical point is that sector-wide costs are unnecessarily high as a result of the premature introduction of large-scale equipment.

23. Frankena (1971) cites a number of examples of mechanical-engineering firms in India which undertake extensive modification of existing tools or complete production of new machine tools because of the inability to import specialized tools. Many similar examples can be found in other countries. Such activities can offset to varying degrees the adverse impact of import restriction. For evidence in the non-engineering sectors, see Katz (1977).

24. Those items require less fine tolerances and less knowledge of metallurgical properties.

25. This problem is similar, of course, to that in other industries in which inefficient, protected domestic intermediates reduce the competitiveness of efficient purchasing industries. The difference is that poor equipment leads to long-term handicaps, even if the trade regime is liberalized. In contrast, liberalization, say, of textiles can have an immediate effect on clothing costs.

26. Clearly the foregone interest component of capital cost occurs regardless of utilization rates. Whether depreciation charges do so as well depends on whether depreciation is attributable to obsolescence or actual use.

27. The remainder of this section draws extensively on parts of the study of textile machinery in India (World Bank, 1975).

28. Non-production salaries are much lower in India, but this holds for all sectors and confers no specific advantage on capital-goods suppliers.

29. While any cost reducing innovation would be desirable, it is likely that labour-using innovations are most likely to exhibit large payoffs. Also see note 3.

30. See Pack (1979) for a discussion of LDC-produced equipment in a context of the choice of technique. For a more general discussion see Stewart (1979).

31. David (1975) presents a stimulating discussion of this and other related issues.

32. A fascinating account of an indigenous Indian tractor design, and the many bureaucratic obstacles it encountered, is provided by Bhatt (1977).

33. These are not produced under licence but are a slightly modified version of an earlier Japanese design. See Rhee and Westphal (1977).

34. See Bell (1978), Child and Kaneda (1971), Cooper and Kaplinsky (1974), Johnston and Kilby (1975), Kaneda (1971), Pakistan (1976), Smith (n.d.), and Timmer (1972). Many of these illustrations, such as the Child–Kaneda documentation of the production of small engines and other equipment in response to demands generated by the Green Revolution, reflect limited adaptation of design, but confirm the existence of considerable small-scale engineering ability. The most thorough study of adaptation by small-scale producers is that of Bell (1978) on Thailand's generation of locally adapted cassava-processing equipment.

35. For examples see the studies summarized in *World Development*, Vol. 5, No. 10 (October 1977).

36. Crane (1977) presents a fairly complete bibliography.

37. See Cortes (1978), Frankena (1971), Katz and Ablin (1978), Pakistan (1976), and World Bank (1975, 1977). Among the representative facts gleaned from

these descriptions are the following: only one Indian textile-machinery producer spent as much as 1% of its sales receipts on research and development; a 1965 survey indicated that only 5% of Indian licensees engaged in any development activity and that only 2% engaged in more general research (Frankena, 1971). There are exceptions. Some Argentine firms engage in design (Katz and Ablin, 1978). Similarly a small number of Indian firms conduct research for other purposes – for example, to allow a cotton ring frame to be used for worsted spinning – as well as adapt equipment to perform under conditions of high humidity (World Bank, 1975).

38. For example, one of the largest Indian machine tool producers employs 250 engineers and scientists, yet produces virtually no design work of its own (Frankena, 1971).

39. Although it might be argued that an export orientation is conducive to design research, the principal exporting countries have until recently emphasized relatively simple, labour-intensive products not requiring an intensive design effort. Whether the increasing emphasis of the East Asian countries on engineering products will be accompanied by a local design effort or by reliance on licences still is unclear. In existing technology-based industries producing mainly for the local market, such as chemicals, the emphasis has mainly been on licensing. For an example, see World Bank (1978), Chap. 7.

40. Mansfield *et al.* (1977) have recently produced estimates showing that R and D costs per project are negatively related to experience. Should this be more generally confirmed it would support an 'infant industry' view of the R and D process.

41. Of course, an absence of some initial subsidization would almost surely preclude investment in R and D by local firms.

42. Frankena (1971).

43. See Baldwin and Childs (1969) for an explicit model of this type.

44. Government intervention may also discourage innovation. For example, in India it became difficult to obtain a licence to manufacture a new product without a prior agreement with a foreign technical collaborator [Frankena (1971, p. 396)]. Similarly, it was difficult to obtain foreign exchange for the import of prototypes or for travel to trade fairs (*ibid.*, pp. 423–429).

45. For an example see Katz and Ablin (1978).

46. Among the relevant studies are those of Alchian (1963), David (1975), Dudley (1970), Hirsch (1952) and Oi (1967). Whether experience is best viewed as the sum of previous physical production or the time since production began remains an open question. See, for example, David (1975) and Fellner (1969). Task-level labour productivity will also improve as some current productivity-depressing practices, such as the use of limited numbers of special tools, represent an optimal adjustment to existing factor prices. As wage–rental ratios grow, the induced increases in capital–labour ratios will result in greater labour productivity but not necessarily in reduced average costs.

47. Often the best practice exhibits no factor-saving bias – low-cost cutting blades and coolants are examples – and its adoption is warranted regardless of local relative factor prices.

48. For a detailed description of the many types of equipment in which the failure to upgrade design has been a deterrent to exports and a cost-raising factor for domestic firms forced to rely on such equipment, see Frankena (1971), pp. 339–407.

49. The diagram assumes no factor-saving bias in technical improvement.

50. This outcome can be seen by assuming that $A$, $B$ and $C$ in Figure 1 constitute the production alternatives facing a firm. With the indicated factor–price ratio, $C$ is the cost-minimizing technique and is likely to represent either an older vintage or a local design. If $C$ were not available, $B$ would become the minimum-cost choice but result in higher average costs than $C$.

51. It also is desirable to identify sectors in which improvements in the characteristics of equipment of developed countries will be limited, a recommendation more easily offered than implemented.

52. Continuing process innovation resulting from internal research may also occur after the principal flaws are corrected. But there is no reason to believe that these will be greater than those in the developed countries.

53. Productivity growth may also encourage more research and development in so far as lower marginal costs allow firms to increase their quantity of output. Larger quantities encourage research and development because the benefit of that research and development can be allocated over the firm's entire output at zero marginal cost.

54. Of course, such upgrading also is beneficial, and the benefits foregone must be weighed against the gains from additional research.

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# Development Planning and Appropriate Technology: A Dilemma and a Proposal

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**Summary.** – This paper examines the present system of project paper preparation and project planning used by the U.S. Agency for International Development and many donor agencies. Three approaches for meeting the evident weaknesses of the system – a holistic approach to the planning problem, an operant-conditioning approach to implementation, and a 'process' approach to planning and implementation – are presented and critiqued. On the basis of the critique, an approach which is grounded in a search for an approximately appropriate technology which 'twiddles the technical knobs' – is supported; and a proposal for an appropriate technology evaluation system which would analyze alternative technologies, deliver information to the field level, supply needed information on technologies and implementation, constrain donor planners, reduce lag time, incorporate evaluations into future planning, and reduce dependence upon planners is presented.

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## 1. THE ARGUMENT IN BRIEF

The defects of the present system of project paper preparation and project planning as they relate to both viability and the choice of technology are readily apparent. Jameson and Worthington's paper 'Inside cost–benefit analysis in AID' made a quantitative analysis of a random sample of 110 project papers (and Capital Authorization Papers) approved since 1970 and found that half the projects (49%) did not conduct either a benefit–cost or internal rate of return analysis, and did not answer the question as to whether the projects were economically justified.[1] (Only 56% of agricultural projects, and 42% of rural development projects did so.) Nine per cent (9%) of the agricultural projects giving benefit–cost ratios did not give *any* data supporting them, nor a list of the necessary assumptions. In 25% of the projects, no data were shown at all, and 'in many cases, faced with the . . . absence of data, project designers simply did no analysis'.[2] The authors concluded that 'there is room for substantial doubt about the usefulness of the type of analysis'.[3] With respect to the choice of technology, it should be noted that an appropriate technology cannot be identified unless each alternative technology is tested by a separate cost–benefit analysis, whereas in practice it was unusual for even *one* technology to be analysed.

The research of the author[4] indicates that even when benefit–cost and internal rate of return analyses are conducted and presented, the assumptions are often such as to vitiate the analysis; alternative technologies are not considered, and the technologies chosen are demonstrably inappropriate.

The attempt to get at least some idea as to the economic feasibility of projects undertaken (and hence at the technologies employed) has not been without its side effects. Johnston writes:

> 'The common tendency for donor agencies to require increasingly complex procedures for the evaluation of projects has placed excessive and inappropriate demand on limited planning and administrative capacity of developing countries. This has engendered delays and a shortage of good projects and has increased dependence on foreign enterprise. The result, Chambers argues, is 'a malignant syndrome of quasi-sophistication'.[5]

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Given that the evaluation technique is a poor one for evaluating alternative technologies for appropriateness, the result may be both wrong choices and seriously delayed ones. The seriousness of the problem of delay was recently hammered home by Strachan, in an article in *World Development*[6] when, in noting that in Central America any project took a minimum of 2 years from first application to contract signing, and considerably longer before disbursement actually began, he questioned whether we could afford rational planning and the great cost it inevitably entailed.[7]

Another major problem is that planners and consultants often bias the choice of technique in the direction of techniques most useful to consultants (who often go on to undertake the projects) and of greatest ease to planners.[8] Still another major problem is that local data are not available in many cases, and that, for the types of projects where appropriate technology is of most concern, their size renders it infeasible for rigorous analyses to be undertaken.[9] Especially is this the case in the numerous rural development projects undertaken (with AID help) by private voluntary organizations (PVOs).

Even when good project (and hence choice of technique) evaluations are undertaken, the studies may go for nought:

> A good study, properly focused on an agency's field of action and recognizing the limits of its power, may still fall flat in the real world of heavy day-to-day pressures. Perhaps a characteristic weakness of evaluation studies is that they only add to the abundance of perspective and intelligent studies that have had slight influence on action and which already fill libraries on social and economic development . . .[10]

writes Willoughby.

The analysis starts from the premises that there is a plethora of information on intermediate technologies, but unanalysed and on the wrong levels; that the choice of technology is frequently made by planners and consultants biased towards inappropriate technologies; that the method of analysis is usually static benefit–cost analysis with little testing of alternative technologies; and that evaluation studies, even when conducted, rarely affect the decision-making structure.

It is argued that an approach grounded in the search for more appropriate technologies could provide more useful information to planners, provide needed analysis while circumventing local planning bottlenecks, reduce lag times in planning, allow more administrative control and evaluative feedback, and give more rein to local LDC planning.

## 2. PROJECT PLANNING: THREE APPROACHES AND A CRITIQUE

### (a) *Planning: the need for a holistic approach*

One of the strongest cases *against* an approach which is founded in the technological aspects is presented by McInerney in a World Bank Working Paper.[11] There he argues that: (1) it is folly to isolate only the technical aspects of production:

> Many unhappy experiences in the last two decades with the transfer of available highly productive farm technology to developing agricultures have made it abundantly clear that technology change does not merely modify the productive activities of a society. Rather, it triggers an array of adjustments throughout the entire socio-economic system the end result of which may be inimical to . . . development.[12] . . . It is a problem of matching (a) the external influences offered by alternative production methods, public investments, or other policy interventions, with (b) the internal characteristics of the rural system as reflected not only by technical parameters but by the nature of the power hierarchy, the distribution of wealth, the land tenure system, farm size structure, the extent of market development, the traditions of interdependence or social obligations, historical and cultural factors, and so on.[13]
>
> . . . Since technology is never exclusively a production phenomenon, then neither selection of the most appropriate technology for a given situation nor the prediction of its consequences can be treated solely within the restrictions of a technical framework.[14]

As a result, (2) there is 'the necessity for extended examination in the design phase of all facets of innovation projects'.[15] What is called for is a systems analysis. (3) Because the ultimate aim is not simply to transfer technology, but to make technological change 'an internally induced phenomenon':[16]

> The assessment and choice of a particular project should be conducted within the context of both a wide view and a long view of the total rural system, the implications being examined beyond the farm gate and the project time horizon.[17]

(4) At present, there is *no* methodological manner for accomplishing this:

> At the research level, the current absence of methodology for unifying technical, economic, sociocultural, and institutional factors needs to be recognized as a potentially paralyzing condition that impedes the formulation of these guidelines. Theoretical and empirical work on establishing the necessary frames, though initially crude and perhaps professionally unglamorous, could contribute significantly to pragmatic development policy at both project and national levels.[18]

(5) Although 'operational guidelines' are desperately needed, since 'the only mechanism for ensuring uniformity of treatment and adequate and balanced attention to critical issues is to formalize policy statements, organizational structures, and operational guidelines',[19] there is no hope to be found in the appropriate technology (AT) approach:

> The danger in the AT approach is that it diverts attention towards a simplistic policy of "twiddling the technical knobs" and thereby ignoring all the concomitant social, institutional, and infrastructural aspects of the innovation system.[20]

The concept is considered essentially static, because it is not aimed at the long run problem of indigenous technology and because it seeks to adjust to the social system, with the implication that the social system is as given.[21] And, finally it is based on an inappropriate generality – 'what is "appropriate" must obviously grow out of the characteristics of a particular development situation, and cannot be defined in general and universal terms'.[22]

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### (b) *Planning: operant conditioning and project success*

Schaefer-Kehnert (senior lecturer at the Economics Development Institute of the World Bank) has pointed out that of essentially three possible approaches – the subsector-of-product approach, the functional approach, or the regional approach – the subsector-of-product approach is most apt to be successful.[23]

He identifies several criteria critical to project success. These include: (1) simplicity and clarity of objectives; (2) availability of an attractive technology; (3) integration of the basic services; (4) access to expertise; (5) adaptability to potential constraints; and (6) compatibility with existing administrative structures.[24] The 'one-product project' found in the product approach usually has clear and simple objectives, and the required supporting services (credit, storage, marketing, infrastructure) are readily discerned. Since extension training can be concentrated, the overhead costs can be low.[25]

Functional approaches (e.g. general extension services) tend to offer very diffuse services, and are often dependent upon supplementary services which have been offered in a fairly developed free-market economy, but which are rarely available in LDCs.[26] Because only the functions to be developed are clearly defined, whereas the proper products and areas to be developed are not, development is a highly complex task with uncertain prospects.[27]

For similar reasons, regional projects are ill-regarded. They also tend to spread into commercially unsuccessful endeavours.

The primary principles being appealed to by Schaefer-Kehnert are clearly those of operant conditioning. If one can focus on a single activity, and behaviours which make for that activity; if one can discern when one is successful in that activity; if one can positively reinforce behaviours conducive to success, and show a clear, persistent relationship between those behaviours and positive reinforcement – then one is highly likely to be successful, and to elicit those desirable behaviours. The singleness of the target, the clarity of the methods, the consistent focus of all complementary activities (in marketing, infrastructure, extension training etc.) – all of these make success all the more likely. Much of the criticism of the functional and regional approaches, on the other hand, has to do with the diffuseness of the task, and the uncertainty as to which behaviours to evaluate and reinforce.

The contrast between the 'holistic' approach and the 'operant-conditioning' approach is between an approach which focuses on the problem and one which focuses on mechanisms for attacking the problem, between an approach which focuses on analysis and one which focuses on implementation.

### (c) *Planning: the method* IS *the madness*

Mickelwait *et al.* (of Development Alternatives, Inc.) have put forward a planning approach which is sharply at variance with the 'holistic' approach discussed earlier – at variance with regards to operational guidelines as well as the fundamental perception of the planning problem.[28] The most important contrast between the holistic 'blueprint' approach and their 'process' approach lies in their views on uncertainty:

> . . . A fundamental tenent of the process approach – (is) that it is impossible to determine in advance all project activities that may be appropriate.[29]
>
> . . . The conventional approach assumes that solutions to the problems of the rural poor are known, and that projects are vehicles for applying them.
>
> . . . The emphasis of the conventional approach is on upfront planning and highly specific and detailed mapping and schedules prior to the beginning of implementation.[30]

In each of the 12 projects the DAI team looked

at, they found that there were unknowns which needed to be investigated, and data gaps which needed to be filled.[31] Significantly, the question did not lie in the non-existence of improved and probably appropriate technologies. Almost always it was discovered that such technologies existed.[32] The question lay in whether the available technology was appropriate to the specific environment of the project. And here the 'only way to determine the acceptability of technology to small farmers is to test it on their lands!'[33]

Unknowns, then, should not delay implementation:

> On the contrary, it was argued that predicting social dynamics is difficult . . . , that designing and implementation are actually inseparable and that 'unknowns' can be best identified and dealt with through interaction with small farmers.[34]

They conclude:

> When the state of the art in development assistance is such that there are no certain paths to follow, it is a clear instance of misplaced priorities and incentives.[35]

The DAI approach sees the planning process as part of the problem. Whereas the tendency in the 'holistic' approach is to see development as a multifaced problem requiring larger and larger doses of expertise dished out by disinterested 'Philosopher Kings', DAI sees the medium as part of the message, the madness in the method. On the one hand:

> DAI's experience suggests that an approach which leans too far in the direction of the blueprint model often results in the manufacture of 'estimated' data in order to accelerate project approval, and unrealistic implementation schedules and plans;[36]

on the other:

> . . . Under the present AID project design system, considerable data are collected during the design phase, primarily to satisfy the criteria for project approval rather than for use in substantive design formulation.[37]

The requirements of the holistic 'blueprint' approach are such as to lead to dysfunctional behaviour, as masses of data are generated to 'prove' projects will work, when the only proof is in the pudding. As the Mission Director for Upper Volta argued, it is 'impossible to locate, design, and cost microprojects' prior to implementation, yet these microprojects are the life-blood of appropriate rural technology implementation.[38] A wise (if less honest) course of action, more apt to lead to successful funding, is to supply the requisite data, whether it exists or not. Although the Project Papers examined by DAI routinely calculated economic rates of return:

> . . . These projections sometimes bear little or no relation to the realities of the project environment. However, they do appear to assist in getting projects through the review/approval system without a hitch.[39]

Another concomitant of the holistic 'blueprint' approach objected to by DAI was the lengthy delay in getting projects off the ground. Two years was the normal amount of time to be spent in getting the project designed and approved. Much of the data generated (e.g. rates of return, benefit–cost ratios, increases expected in target population incomes) will have no long-term value, because they will not be used as evaluation guides to policy performance.[40] Rather:

> They only serve the short-term function of securing approval with the AID bureaucracy . . . While the costs of the present review and approval system are apparent, the benefits of extensive scrutiny are not easily identified.[41]

Because of the lack of emphasis on evaluation and feedback on actual project performance, and:

> Because of the necessity to satisfy the AID/Washington review and approval process prior to obtaining funds, field staffs concentrate on project design (and Congressional budget presentations and similar requirements), while leaving implementation support to lower ranking, non-policy officials.[42]

### (d) *Critique*

The three approaches to rural development planning described earlier are each grounded in fundamental realities – that rural development is an analytically complex problem in which 'everything hangs together'; that implementation of programmes and projects is highly dependent upon an incentive scheme which can pinpoint goals, evaluate behaviour, feedback, and reinforce proper behaviour; and that the process of planning itself must be made the subject of analysis if planning problems are to be overcome. Each approaches the solution to one set of problems – in analysis of the problems, in implementation, and in treating the method as a problem – while inadequately coming to grips with the others.

A project-by-project planning approach based on the uniqueness and complexity of each attempt at rural development places almost no controls on planners themselves, while

absorbing immense amounts of time and money. It is argued later that: (1) planning as practised is less a 'search for truth' than a 'laying-on of hands'; that (2) truly *local* knowledge is rarely available, and that the search for and use of such data may be dysfunctional; that (3) planning cannot take us all that far in technology assessment, and that insofar as it does aid, it is comparative data which are important; and that (4) although technology is not the most important factor in project success or failure, approximately appropriate technologies can be identified, and that their ready identification would much improve development planning. It is argued that a quite partial analysis focusing on the technologies employed would do much to create a less perverse incentive structure for planners than presently exists, while transferring needed resources to implementation and evaluative feedback.

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As Tendler has noted, the 'present methods of project lending combined with the policy that limits development assistance to import costs have acted together to diminish the supply of projects available for development financing'.[43] The result has been that economists and planners have not been acting in an environment of scarcity – on the contrary, funds for projects are in excess supply. The role of the planner/economist has thus turned from one aiding in choosing between alternative uses for scarce resources to one *justifying* use of resources – the planner is used not to 'make decisions, but to get projects approved'.[44] A number of intimate observers of the planning scene agree on the 'more-or-less commercial role' of the planner in the state machine.[45] Baloch noted that he has 'yet to see a cost–benefit study which was anything more than a very arbitrary set of assumptions,[46] tailored according to the political tastes of its maker', while one of the leading planners in Ethiopia in the 1970s (a Swede) notes:

> Personally, I find the cost–benefit methodology a very crude tool of the kind that has to made in order to snow politically and bureaucratically oriented decision-makers who preside over the funds. (Have you ever been on one of these project preparation committees? . . . What one does is to decide *first* what internal rate of return should be most palatable for the project, given its characteristics, and *then* one makes the assumptions for the analysis in such a way that the desired result is obtained.)[47]

There is, in short, a vast contradiction between what planning appears to be as an intellectual puzzle and planning in practice:

> The striving for technical excellence emphasized in the recommendations of official reports on development assistance implies that the more sophisticated the engineer and the economist, the more effort is devoted to devising sharp instruments of analysis, the closer one will come to the single technically correct answer . . .[48]

writes Tendler. But in point of fact the tools are used to provide institutional 'blessing' to projects willy-nilly. A former expatriate advisor to the Ethiopian Ministry of Agriculture (now an AID Division Chief) has written how a pulse promotion project (amongst others) was planned from the needed result backwards:

> The team was under considerable pressure to show that the project was feasible . . . Having estimated all costs, . . . the design team estimated the incremental tonnage . . . necessary to cover project costs . . . as well as an amount sufficient to show an internal rate of return of 20% per year. The team then developed farm budgets . . . necessary to generate incremental value/cost ratios equal to 2.0 for tenants paying one-third . . . rent. . . . an average area cultivated under pulses was guesstimated. These were applied to the typical farm budget . . . to obtain the requisite number of farmers who had to be reached each year by the program . . . to sustain a 20% rate of return.[49]

The final project proposal implied a farmer to extension agent ratio of 1720 to 1, which was recognized as absurd by the design team, which 'took great pains not to bring it out in the project write-up'.[50]

An obvious concentration on justification as opposed to planning was also found in the AID planning of the Ada project in Ethiopia, when incremental yields to mechanized plowing services were 'guesstimated' on the basis of absolutely no data, local or otherwise, where in the course of analysis returns to fertilizers were increased by 40% without any supporting documentation, and where all four major components of the project (mechanization, water supply, roads and grain storage) were found to be composed of inappropriate technologies, alternative technologies never having been tested.[51] As Daines has noted:

> There have been some exceptions in which the benefit–cost analysis was properly staged and permitted the rational selection between alternatives, but such cases are rare.[52]

In actuality, there is often a shortage of available projects for funding, no 'comprehensive inventory or studies of the type which would enable a systematic program of project identification';[53] projects are often 'given' planners to justify as best they can. Expatriate planners are funded by aid agencies to develop

fundable projects, and AID planners are 'lent' ministries to develop plans which they will later be asked to approve in their official capacities.

The real incentive in such a system is to 'move money'. Mission directors have a real need to expand their programmes to generate more projects and real reason to evaluate their employees on their ability to do so.[54] (They also have need of at least passive acceptance of their schemes by local government, which may account for project benefits so often being garnered by local élites.)

It is in such a context that one must consider the function of 'local data'. The obvious point is that local data are often lacking *unless* a project is already in place:

> The most important failing of benefit/cost as it is practiced in AID project analysis is not in the method utilized but in the simple fact that no reasonable data stand behind the 'with' and 'without' project impact and cost estimates. Most often there are no data at all, the estimates of the difference the project will make are based on the subjective judgments of "experts" and in many cases by the benefit/cost analyses themselves.[55]

The most important aspect, however, is the power 'local data' gives to planners whose primary rewards come from justifying projects, and whose roles are as 'hired guns' and advocates. An example of such power is demonstrated by the Shashamane development project proposal in Ethiopia, where the criticisms raised by one of the leading agricultural economists in the world and a team of four advanced Ph.D. students under him were successfully countered by the resident AID planner. The team noted that: (1) 100% of the land was assumed to be in production every year; (2) the yields of three of the crops (maize, wheat and beans) were assumed to be triple; (3) the analysis was extremely sensitive to yield changes, and if yields fell by 10% or prices by 10%, the project would not be feasible; (4) the mechanized equipment packages would be underutilized, and would be less appropriate than either small tractor packages or animal-powered options; and (5) the project would primarily benefit a small group of élitist farmers.[56] The successful defence raised by the resident USAID agricultural economist is instructive:

> It is unfortunate that Professor Eicher did not have access to all of the background information and data that served as basis for formulation of the Shashamane Project proposal and that his research and experience here-to-fore has not pertained to Ethiopia, whose agricultural resources and problems are in many ways unique in Africa.[57]

In point of fact the mission had no data on crop yields in the project area, save for those of maize on a research farm nearby. Using this as the sole piece of *local* data, and knowing that yields achieved at research stations are usually greatly in excess of those achieved in the field (if for no other reason, because they have expert care and few constraints on factors of production), the mission planner was nevertheless able to argue that the team's knowledge of experiences of a similar project in Tanzania (Kitale hybrid maize in Njombe District) was irrelevant.

Glossing over the points raised in the team's analysis, the defence made much of the fact that the area was unique to Ethiopia, being sparsely populated, and highly suitable to commercial farming, even if large tractor cultivation was not economic. Unfortunately, although the mission had conducted a survey of 62 farms in the area, it was unaware of the presence of large numbers of Galla tribesmen who lived in the area, and remained unconvinced until an Ethiopian University Service student went into the area and collected the names of hundreds of families living in that 'uninhabited' area! (Needless to say, the point that these tribesmen would be evicted by the project was not raised for discussion.)

The defence also took refuge in numbers, noting that:

> . . . The Shashamane proposal was prepared by an interministerial committee composed of Ethiopians and (British, Indian, Yugoslav and American) expatriates from FAO, the World Bank and AID. The project was appraised by other IEG and U.S. committees.[58]

In point of fact, the technique, on this and other projects, is for one team to design and justify the project, and for that team to proceed to brazen its way through the bureaucratic maze claiming special local knowledge and experience, the bulk of which often turns out to be untested and unfounded assumptions. Given the incentives to get funds obligated, and given the relative difficulty which outsiders have in making critical evaluations and in having these evaluations count, it becomes virtually impossible to use project analyses as a comparative device to weed out weaker projects, because the internal rates of return cited are limited only by the audacity of the proposal team.[59]

Because benefits and costs of projects are *potential* flows to a project area, and because those seeking to get projects funded are apt to see considerable potential, and because adequate local data are apt to come only when a

project is originated, it should be asked if comparative data is not more valuable for decision-making. In analysing a product proposal in Ethiopia, should not one be greatly influenced by the fact that an IBRD study team found that all tractor hire schemes in Africa had failed to recover their costs, to have run their tractors only a portion of the time per year originally estimated, and to have required substantial subsidization? Should not one be concerned that the Ada proposal justifies bulk grain storage bins while 40 km away the Ethiopia Grain Corporation has 70% of the same kind of storage empty because it finds it non-competitive? Given the pressure to justify projects, should not the standard be the returns one might expect on the basis of comparable technologies introduced into comparable settings, and should not the onus be on the planner to prove that his case is a deviant one?

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Admittedly, the assessment of technologies and their impacts is an extremely difficult process, and there is a strong reason to argue for the uniqueness of the result, as well as to argue that the ultimate impacts are unknowable. Epstein, in her classic study of two villages in Mysore,[60] found that the opportunities for irrigation for one village led to much increased incomes over time, but that the increases in income served to reinforce the land-holding élites and the extant social stratification; whereas in an upland village without access to irrigation canals, the very *lack* of opportunities led the village to reach out, to make use of chances for migration and education, and to develop entrepreneurship in a number of novel ways. As a result, a technological change which would 'fit in' admirably by the McInerney criteria led to growth, while the other village ended up with development.

It is equally difficult to know the long-term impacts of technology, as White has shown in a number of contexts.[61] In one famous study, he has shown how the introduction of the stirrup into Europe at the time of Charles Martel led to a new form of highly effective cavalry combat. The need for expensive equipment and horses and highly trained soldiers was directly related to the confiscation of church lands and the letting of fiefs, the rise of feudalism and the demise of the power of the peasant army. The spinning wheel, to take another example, led to cheap linen, and thus cheap linen rags, a major consequence of which was the drastic reduction in the cost of paper in the 13th century. Even harder to fathom, the introduction of the chimney into European households from the 9th to the 12th century (at the end of which even the poor possessed them) led to the demise of the central sleeping area, shared by all the strata of the medieval household. White sees the chimney as important as any other single factor in the development of Occidental individualism, 'affecting love more than the troubadors' and 'individualism more than all the humanists'.[62] One impact was certainly the growth of class consciousness, alienation and snobbery. The long-run impacts of each of these technologies was fundamental to the development of the West, yet it is difficult to see how these potential impacts could have been discerned by contemporaries, much less quantified and balanced in terms of benefits and costs.

In sum, while it is possible to agree with McInerney that:

> Overall, the design of the technical component of the development project places a premium on knowledge of the local situation and an understanding of the situation-specific characteristics of the package,[63]

(why, for example, did Islam reject the printing press at the same time that Europe was accepting it?), the examination of situation-specific characteristics may need to be so intense as to be unaffordable, or not amenable to a priority analysis, as well as setting up institutional incentive structures leading to poorly planned projects. The complexity of long-term impact assessment, on the other hand, may point to the usefulness of comparative and historical studies.[64]

There is, in short, a need for broad historical studies – but these go beyond the project level; and there is a need to know the micro-level complexities of the rural societies – but this, in the planning process, becomes warped and co-opted. There is a real need to prevent 'ceremonial justifications' using local data as an excuse, and a real need for ongoing evaluation within the project to make projects work, and a real need for incentive systems which break the 'holistic' planning problem into components which have identifiable goals, measurable attainment, and feedback and reinforcement mechanisms.

## 3. THE PROPOSAL

The present planning methods used (especially) by AID lead to perverse incentives to 'justify' projects rather than to plan them. Evaluation, when and if it is performed, is either performed by those who have an incentive not

to find fault or by those who have little time or capacity to uncover the difficulties and little power within the agency.[65] Given that the incentives and stresses placed upon planners are perverse, and given that there is at present little opportunity for positive and negative feedback to mould behaviour, there is need of a planning system which would, on the one hand, produce appropriate technologies for a complex rural development environment, and which would, on the other, give adequate incentive and feedback structures to insure that the process actually worked. Conceptually, the system must be holistic enough to encompass the planning process as part of the problem; operationally, it must break the needed behaviours into enough components so that each has fairly clear-cut goals, the progress towards which can be adequately measured, and performance shaped.

The simplest way of achieving these ends lies in an approach which 'twiddles the technical knobs' – i.e. an approach grounded in the search for 'appropriate' technologies. This approach eschews the search for perfection inherent in 'fine-tuning' technologies to the given socio-politico-economic and cultural milieu, and adopts the view that adaptation to this milieu is something which can best be achieved in the doing (rather than on paper), in the process of implementation (rather than in planning). It focuses on the fact that grossly inappropriate technologies are being utilized, that the choice of technology does have implications for distribution of incomes, for replicability, and for rates of diffusion of innovations.[66]

The proposed analytical evaluation system would have the following components.

(a) *Technologies information component*

For a given task (e.g. grain storage) the computerized system would have a stock of information on inputs, international prices, and critical parameters. This information base serves to broaden the perceptions of planners and consultants of the technological alternatives available, and to alert them to critical factors. It also serves to reduce the plethora of information on alternatives to manageable proportions. Even were planners aware of alternative technology sources (say, for example, the VITA *Small Farm Grain Storage Manual*), they would still have only a partial inventory of basically non-comparable *engineering* information, rather than the *economic* information and analysis needed for planning. Once the approximately appropriate technologies have been determined, these lists are useful to implementors and technicians.

(b) *Local information component*

While an entirely appropriate technology would be attuned to the micro-environment, the search for all the significant parameters of that micro-environment is dysfunctional. It is nevertheless important to take localized opportunity costs into account. For each technology group (again taking grain storage for an example), local planners or donor groups would need to seek out and supply information on parameters thought critical to the analysis. In the case of grain storage, one might ask about the altitude of the storage area, for rainfall and humidity parameters, for the size of grain to be stored, for types of inputs (e.g. bamboo) available, and for local prices of such things as unskilled labour.

In practice, the system might be used: (1) by mail, with LDC users requesting information, then being asked to fill out a local inputs information list, and supplied with the results; (2) by LDC and donor agencies using regional centres supplied with the tapes; or (3) by LDC and donor agencies taping a local computer by terminals.

(c) *Analysis component*

Using the technologies information and knowledge about local inputs and prices, linear programming and benefit–cost analysis would then be conducted to determine which alternatives seem to be most appropriate. Sensitivity analysis on critical factors (e.g. the loss rate in storage, the cost of unskilled labour) would be conducted.

Perhaps more importantly, analyses of secondary and dynamic effects normally not included in project analysis would be made. It would thus be possible to estimate the impact upon employment, the linkage effects, the impact upon the demand for foreign exchange, the probable diffusion of innovation etc., on the basis of the 'track records' of similar projects.

It is expected that a range of approximately appropriate technologies would be identified on the basis of linear programming and benefit cost analysis, and that planners would have to weigh the other factors entering into the analysis. The print-outs of the linear programming and benefit–cost analysis would serve as project planning documentation, and would be accepted by major donors in lieu of site-specific project planning.

(d) *Information output component*

In addition to printouts giving economic analysis and lists and prices of components of the range of appropriate technologies, the system would also output a small, select bibliography on the technologies selected. This would give a few references on each of: (1) evaluation studies of such technologies; (2) technical and engineering sources on use of technology; and (3) studies of implementation of projects containing such technologies. The planner can use this data source to convince himself/herself that the technology has promise, to aid his implementor, and to convince his technicians that the technique does exist, has been tested, and may prove superior to alternatives.

How would such a data bank differ from others? For one thing, it has a planner's focus rather than an engineer's focus. Rather than a long list of ingredients, it has a focus on cost, choices and critical parameters. It does not flood the planner with information in an indigestible manner. It does broaden the planner's 'menu', it does provide a source of technical and implementation information, and it does provide the analytical skills and information on critical parameters to allow the planner to make an intelligent choice. It not only carries out time-consuming tasks, it provides documentation useful in seeking funding, and inputs lists useful in implementing project plans.

How would such a bank be put together? Obviously, the choice of technique is extremely complicated, and it would be quixotic to attempt this system across a wide range of technologies. But the focus of most aid programmes is on rural development – 'basic needs', in a general way – and it is here that we have in the past seen some of the most inappropriate technologies employed. Donors (say, CIDA, SIDA, DANIDA, AID, IBRD, UNDP) could pick key areas, and, following a general format, come up with computer tapes, programme routines, parameters and evaluation studies appropriate to their chosen technology. These tapes could then be shared, and updated periodically.

Such a system, if it could be established for the most basic of rural development activities – i.e. those most integral to a policy orientation of 'basic human needs' – would accomplish a number of major objectives:

(1) *It would force planners to consider more appropriate technologies.* While planners might still be tempted to try to transfer technologies they are most familiar with (and which can be imported from their host country), and while their easiest out might still be to let consultants recommend technologies familiar to them, and while the most capital-intensive technologies might still be the least risky and the easiest to administer, the onus would now be on the planner to show that the seemingly inappropriate technology is in fact best. Given that this would necessitate documentation, and thus constitute a drain in time and energy on the local mission, with no certitude of success, the incentive would now be to utilize the approximately appropriate range of technologies.

(2) Because, for each set of conditions, a range of technologies could be identified which would stand up to external scrutiny, *the present 2-year lag time from proposal to funding could be eliminated.* One of the aspects in reinforcing positive behaviour is the swiftness of reinforcement, and the present uncertainty that funding can be achieved (or that any sane standards underlie acceptance or refusal of projects) greatly erodes the morale of both missions and less developed country governments. The system would allow a number of bureaucratic personnel to be more effectively employed.

(3) *For the first time, evaluation studies could be effectively incorporated into project analysis.* Most evaluation studies have little if any impact. A few are such poignant reading as to be widely read, yet they are rarely able to sway the dominating incentive structure. More often than not, they are pointed to as lessons to heed, and are then ignored. But if evaluation studies reveal that tractor hire stations only partially use their tractors, or that some technologies are diffusing much more rapidly than others, and that information is incorporated into the computerized system, it becomes a datum with which each planner must cope. *Whereas there is presently within aid agencies the feeling that evaluation is a luxury which can scarce be afforded, evaluation is an integral part of project planning.*

(4) Because the time spent by missions in planning and justifying projects would be drastically reduced, *the emphasis would shift from planning projects and obtaining funding to project performance and implementation.* Given that several basic technologies have met with pre-approval, missions would be differentiated primarily by their ability to identify replicable and successful technologies, and to spread them – in short, by their performance in development (as opposed to obtaining funding).

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(5) Because the system could be used by local governments and planners just as easily as by missions, *local planners would develop independence and be able to exercise initiative.* First of all, the proposal would free LDCs from their heavy dependence upon local donor missions, and the expertise trap of having to rely upon those who know what the bureaucratic donor system wants. For a range of 'basic-need' activities, the standards and analyses would be overt. LDCs could obtain tapes which would allow them to sort out what might be preferable technologies in basic-need areas, and which might form the basis of local experimentation to determine the most appropriate technologies. The system would supply acceptable documentation on proposals which they could directly submit for funding. Even when they did not desire loans or advice, they would be the beneficiaries of more extensive research on techniques and implementation than many are capable of with their limited resources.

The proposed system would give adequate incentive for each agency component to perform its task, and do away with a planning mechanism which consumed large amounts of resources and time while adding little to project quality and chances of success. It would allow sophisticated analysis in planning, and more resources devoted to evaluation and feedback while allowing less skilled personnel access to the planning process. Most important, it provides a mechanism whereby evaluation can accomplish something beyond exhortation in affecting future planning policy.

It should be reiterated that such a proposal is *not* an engineering or information system proposal, the likes of which have flooded the memory banks of a number of computers to no apparent purpose. It is a *planning* system. It would necessarily *abstract* from the real world (e.g. it would seek to economize on broadly defined *factors* of production subject to a *few* critical constraints). It would focus on rural and village technology (a horribly complex task in the best of circumstances), but to meet *planning* needs – to speed up the planning process, to identify a *range* of acceptable possibilities, to force planners to consider this range of possibilities, to free planners in the field from costly and time-consuming second-guessing in Washington, and to focus attention on *implementation*, and away from *moving money* via the writing of phoney projects.

The system would *not* speak to a myriad of problems which arise in any given socio-political situation, and it should be realized that the arguments alleging the often crucial character of such constraints (e.g. ethnicity, land tenure etc.) are indeed correct. But it is argued that these constraints are best dealt with in the field, in the process, by local (and locals'!) experimentation. To the extent that generalizable results can be gleaned from study, both micro–macro-level studies (of peasant decision-making, for example) and broad historical studies are crucial. Neither is best conducted at the project level.

The system would hopefully do away with large parts of a wasteful ceremonial system of planning which bears little relation to the projects actually carried out, which still results in vastly inappropriate technology being used, which gives large rewards for dysfunctional behaviour (i.e. the erudite justification of hypothetical projects with mythical data), and which results in long delays to no great effect.

## NOTES

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35. *ibid.*, p. 214.

36. *ibid.*, p. 6.

37. *ibid.*, p. 49.

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61. See especially, Lynn White, Jr., *Medieval Technology and Social Change* (Oxford: Oxford University Press, 1962).

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64. It should be pointed out that much of AID and IBRD project assessment is, despite appearances, actually such comparative analysis, since the data upon which projects are founded are often of doubtful validity, and more reliance is placed in fact on judgment of the assessment team of 'old hands', whose function it is, on the basis of other experiences, to keep the assumptions and premises of the project plan within acceptable norms.

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# Trade in Manufactured Goods: Patterns of Change

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**Summary**. – This paper looks at the changing pattern of trade in manufactured goods between the developed industrial countries and the developing countries. It first reviews recent changes in this trade and the policies applied. Then it analyses the comparative advantages of the industrial and the developing countries and indicates the commodity composition of this trade. The implications of the results are drawn with reference to the benefits of trade in manufactured goods for the participants.

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This paper will examine the changing pattern of trade in manufactured goods between the developed industrial (for short industrial) and the developing countries. Section 1 of the paper will review recent changes in this trade and the policies applied. In Section 2, the comparative advantages of the industrial and the developing countries in manufactured goods will be analysed and changes in the commodity composition of this trade indicated. In conclusion, the implications of the results will be drawn with reference to the benefits of trade in manufactured goods for the participants.

## 1. TRADE IN MANUFACTURED GOODS BETWEEN INDUSTRIAL AND DEVELOPING COUNTRIES

This section reports on changes in trade in manufactured goods between the industrial countries and the developing countries during the 1973–1978 period. The former group is defined to include the United States, Canada, the European Common Market (EEC)[1] the European Free Trade Association (EFTA)[2] and Japan; within the latter group, data for OPEC[3] and for the non-OPEC developing countries[4] are separately shown.

The two groupings exclude the countries of Southern Europe (other than Portugal); Australia, New Zealand and South Africa; and the centrally-planned economies. While the countries of Southern Europe may be appropriately included in the developing-country group, this had not been done in the present paper because the future trade prospects of these countries are intimately linked with their accession to the Common Market, to take place during the 1980s.

Manufactured goods are defined as commodity classes 5–8 in the UN Standard International Trade Classification less non-ferrous metals (68). Trade in manufactued goods will be examined first in value terms, indicating changes in the balance of trade, and subsequently in volume terms. Changes in trade volumes will further be related to the rate of economic growth, and the results will be evaluated with reference to the trade policies followed by individual countries and country groups.

### (a) *Changes in the balance of trade in manufactured goods*

The value of the manufactured exports of the industrial countries to the OPEC countries increased slightly more than fivefold between 1973 and 1978 while the reverse flow of these commodities remained at very low levels (Table1). As a result, the industrial countries' trade surplus in manufactured goods with OPEC rose from $12.3 billion in 1973 to $63.5 billion in 1978. This increase covered 69% of the rise in the oil import bill of the industrial countries with OPEC, from $28.7 billion in 1973 to $102.9 billion in 1978.[5]

The extent of coverage of the increase in oil imports by manufactured exports to OPEC, however, varies to a considerable extent among

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The opinions expressed in the paper are the author's own and should not be construed to represent the views of the World Bank.

Table 1. *Trade between the industrial countries and the developing countries in manufactured goods* (billion dollars, f.o.b.)*

| | United States | | | Canada | | | EEC | | |
|---|---|---|---|---|---|---|---|---|---|
| | Export | Import | Balance | Export | Import | Balance | Export | Import | Balance |
| OPEC | | | | | | | | | |
| 1973 | 2.43 | 0.06 | 2.37 | 0.17 | 0.00 | 0.17 | 7.00 | 0.42 | 6.58 |
| 1974 | 4.27 | 0.09 | 4.18 | 0.29 | 0.00 | 0.29 | 11.63 | 0.40 | 11.23 |
| 1975 | 8.00 | 0.09 | 7.91 | 0.56 | 0.00 | 0.56 | 20.00 | 0.46 | 19.54 |
| 1976 | 9.90 | 0.09 | 9.81 | 0.75 | 0.00 | 0.75 | 23.11 | 0.53 | 22.58 |
| 1977 | 10.50 | 0.09 | 10.41 | 0.83 | 0.00 | 0.83 | 29.42 | 0.66 | 28.76 |
| 1978 | 11.97 | 0.14 | 11.83 | 1.04 | 0.00 | 1.04 | 34.56 | 1.11 | 33.45 |
| Non-OPEC countries | | | | | | | | | |
| 1973 | 10.18 | 7.34 | 2.84 | 0.57 | 0.54 | 0.03 | 15.92 | 4.68 | 11.24 |
| 1974 | 16.10 | 9.74 | 6.36 | 0.88 | 0.75 | 0.13 | 23.04 | 5.83 | 17.21 |
| 1975 | 17.75 | 8.89 | 8.86 | 1.04 | 0.75 | 0.29 | 25.81 | 6.85 | 18.96 |
| 1976 | 18.25 | 12.96 | 5.29 | 1.05 | 1.20 | −0.15 | 25.21 | 8.92 | 16.29 |
| 1977 | 18.84 | 15.62 | 3.22 | 1.08 | 1.17 | −0.09 | 29.74 | 10.88 | 18.86 |
| 1978 | 23.54 | 20.93 | 2.61 | 1.24 | 1.27 | −0.03 | 37.28 | 14.10 | 23.18 |
| Developing countries together | | | | | | | | | |
| 1973 | 12.61 | 7.40 | 5.21 | 0.74 | 0.54 | 0.20 | 22.92 | 5.10 | 17.82 |
| 1974 | 20.37 | 9.83 | 10.54 | 1.17 | 0.75 | 0.42 | 34.67 | 6.23 | 28.44 |
| 1975 | 25.75 | 8.98 | 16.77 | 1.60 | 0.75 | 0.85 | 45.81 | 7.31 | 38.50 |
| 1976 | 28.15 | 13.05 | 15.10 | 1.80 | 1.20 | 0.60 | 48.32 | 9.45 | 38.87 |
| 1977 | 29.34 | 15.71 | 13.63 | 1.91 | 1.17 | 0.74 | 59.16 | 11.54 | 47.62 |
| 1978 | 35.51 | 21.07 | 14.44 | 2.88 | 1.27 | 1.01 | 71.84 | 15.21 | 56.63 |

| | EFTA | | | Japan | | | Industrial countries | | |
|---|---|---|---|---|---|---|---|---|---|
| | Export | Import | Balance | Export | Import | Balance | Export | Import | Balance |
| OPEC | | | | | | | | | |
| 1973 | 0.69 | 0.04 | 0.65 | 2.56 | 0.00 | 2.56 | 12.85 | 0.52 | 12.33 |
| 1974 | 1.19 | 0.07 | 1.12 | 5.16 | 0.02 | 5.14 | 22.54 | 0.58 | 21.96 |
| 1975 | 1.96 | 0.05 | 1.91 | 8.12 | 0.00 | 8.12 | 38.64 | 0.60 | 38.04 |
| 1976 | 2.79 | 0.05 | 2.74 | 8.94 | 0.02 | 8.92 | 45.49 | 0.69 | 44.80 |
| 1977 | 3.21 | 0.07 | 3.14 | 11.50 | 0.03 | 11.47 | 55.46 | 0.85 | 54.61 |
| 1978 | 3.72 | 0.09 | 3.63 | 13.57 | 0.05 | 13.52 | 64.86 | 1.39 | 63.47 |
| Non-OPEC countries | | | | | | | | | |
| 1973 | 2.46 | 0.76 | 1.70 | 9.66 | 2.20 | 7.46 | 38.79 | 15.52 | 23.27 |
| 1974 | 3.53 | 1.02 | 2.51 | 14.90 | 2.52 | 12.38 | 58.45 | 19.86 | 38.59 |
| 1975 | 3.74 | 1.18 | 2.56 | 14.26 | 2.01 | 12.25 | 62.60 | 19.68 | 42.92 |
| 1976 | 3.77 | 1.38 | 2.39 | 15.57 | 2.88 | 12.69 | 63.85 | 27.34 | 36.51 |
| 1977 | 4.49 | 1.82 | 2.67 | 19.83 | 2.97 | 16.86 | 73.98 | 32.46 | 41.52 |
| 1978 | 5.89 | 1.93 | 3.96 | 25.64 | 4.27 | 21.37 | 93.59 | 42.50 | 51.09 |
| Developing countries together | | | | | | | | | |
| 1973 | 3.15 | 0.80 | 2.35 | 12.22 | 2.20 | 10.02 | 51.64 | 16.04 | 35.60 |
| 1974 | 4.72 | 1.09 | 3.63 | 20.06 | 2.54 | 17.52 | 80.99 | 20.44 | 60.55 |
| 1975 | 5.70 | 1.23 | 4.47 | 22.38 | 2.01 | 20.37 | 101.24 | 20.28 | 80.96 |
| 1976 | 6.56 | 1.43 | 5.13 | 24.51 | 2.90 | 21.61 | 109.34 | 28.03 | 81.31 |
| 1977 | 7.70 | 1.89 | 5.81 | 31.33 | 3.00 | 28.33 | 129.44 | 33.31 | 96.13 |
| 1978 | 9.61 | 2.02 | 7.59 | 39.21 | 4.32 | 34.89 | 158.45 | 43.89 | 114.56 |

Source: GATT, *International Trade*, 1976/77 and 1978/79.
* SITC commodity classes 5–8 less 68 (non-ferrous metals).

Table 2. *The rate of growth of manufactured trade between industrial and developing countries and that of the industrial countries gross domestic product (per cent)*

| | Exports | | | Imports | | Apparent income elasticity |
|---|---|---|---|---|---|---|
| | OPEC | non-OPEC | All LDC | All LDC | GDP | |
| 1963–1973* | | | | | | |
| Industrial countries | – | – | 8.2 | 16.5 | 4.6 | 3.6 |
| 1973–1978 | | | | | | |
| United States | 23.7 | 6.3 | 10.6 | 11.1 | 2.5 | 4.4 |
| Canada | 33.7 | 8.8 | 16.5 | 6.8 | 3.4 | 2.0 |
| EEC | 23.3 | 6.2 | 12.5 | 12.1 | 2.1 | 5.8 |
| EFTA | 23.8 | 5.4 | 10.7 | 8.4 | 1.5 | 5.6 |
| Japan | 26.4 | 9.9 | 14.2 | 3.0 | 3.6 | 0.8 |
| Industrial countries, total | 24.2 | 7.2 | 12.5 | 10.2 | 2.5 | 4.1 |
| of which 1974 | 45.3 | 24.5 | 29.7 | 4.2 | 0.4 | 10.5 |
| 1975 | 52.8 | −4.5 | 11.5 | −1.5 | −0.8 | 1.9 |
| 1976 | 16.4 | 0.7 | 6.7 | 27.3 | 5.2 | 5.3 |
| 1977 | 12.9 | 7.8 | 9.9 | 7.6 | 3.6 | 2.1 |
| 1978 | 1.1 | 9.6 | 6.0 | 15.5 | 4.0 | 3.9 |

Sources:
1963–1973: United Nations, *Monthly Bulletin of Statistics* and *Yearbook of National Accounts Statistics*, various issues.
1973–1978: Value of trade – GATT, *International Trade*, 1978/79.
Unit values – GATT, *Network of World Trade by Areas and Commodity Classes*, 1955–1976 (Geneva: 1978) and *International Trade*, 1977/78 and 1978/79; and United Nations, *Monthly Bulletin of Statistics*.
Gross domestic product – OECD, *National Accounts of OECD Countries*, 1979; and *Economic Outlook* (December 1979); United Nations, *Yearbook of National Accounts Statistics*, 1978.

* Estimated by use of regression analysis.

the industrial countries and country groups. The relevant ratios for 1978 are: the United States, 38%; Canada, 56%; the European Common Market, 99%; the European Free Trade Association, 119%; and Japan, 65%. The observed differences in these ratios are largely explained by intercountry differences in the rate of growth of oil imports and in the initial coverage of oil imports by manufactured exports to OPEC, while the rate of expansion of the exports of manufactured goods to OPEC has varied little among the industrial countries.

Thus, the ratio of 1978 to 1973 oil imports ranged from 7.5 in the United States to 2.6 in the European Common Market, and the 1973 coverage of oil imports by manufactured exports to OPEC varied from 68% in EFTA to 21% in Canada. In turn, the ratio of 1978 to 1973 exports of manufactured goods to OPEC was between 5.0 and 5.5 in the major industrial countries and country groups; it was 6.1 in Canada.

Intercountry differences in the rate of expansion of manufactured exports from the industrial countries to the non-OPEC developing countries have also been rather small. Japan occupies first place, with a ratio of 1978 to 1973 exports of 2.7, followed by the European Free Trade Association (2.4), the European Common Market and the United States (2.3), and Canada (2.2). The differences are larger as regards the growth of manufactured imports from the non-OPEC developing countries; the ratios of 1978 to 1973 imports are 3.0 in the European Common Market, 2.9 in the United States, 2.6 in the European Free Trade Association, 2.4 in Canada, and 1.9 in Japan.

Changes in the industrial countries' trade balance in manufactured goods with the non-OPEC developing countries have been further affected by their initial position in this trade, as expressed by the ratio of manufactured exports to imports in 1973. This ratio was the highest in Japan (4.4), followed by the European Common Market (3.4), the European Free Trade Association (3.2), with the United States (1.4) and Canada (1.1) far behind.

Given its high initial trade position, slightly above-average export expansion, and substantially below-average import growth, Japan experienced by far the largest increase in its trade surplus in manufactured goods with the non-OPEC developing countries. This increase, from $7.5 billion in 1973 to $21.4 billion in 1978, accounted for fully one-half of the rise in the combined manufactured trade surplus of

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the industrial countries with the non-OPEC developing countries from $23.3 billion to $51.1 billion.

The EEC and EFTA also increased their trade surplus in manufactured goods with the non-OPEC developing countries; the increase was from $11.2 billion to $23.2 billion in the first case and from $1.7 billion to $4.0 billion in the second. In the same period, the US trade surplus with these countries declined from $2.8 billion to $2.6 billion. With very similar export and import trends, differences in the 1973 trade position of the EEC and EFTA, on the one hand, and the United States, on the other, explain the observed differences in the results.

### (b) *Changes in the volume of manufactured trade and in the gross domestic product*

Table 2 provides data on changes in the volume of trade in manufactured goods between the industrial and the developing countries in the 1973–1978 period. Information is also provided on the rate of growth of GDP in the industrial countries and on their 'apparent' income elasticities of import demand for manufactured goods originating in the developing countries, derived by dividing the rate of growth of the volume of imports by that of GDP.[6]

The table shows an apparent income elasticity of import demand of 4.1 for the industrial countries in the 1973–1978 period; their combined manufactured imports from the developing countries rose at an average annual rate of 10.2% in volume terms as compared to an average rate of growth of GDP of 2.5%. The volume of manufactured imports from the developing countries increased more rapidly in the preceding decade (16.5%/year), when considerably higher rates of GDP growth (4.6%/year) were associated with a lower apparent income elasticity of import demand (3.6).

The results for the 1973–1978 period were affected to a considerable extent by the 1974–1975 recession. In 1975, the industrial countries' GDP was slightly below the 1973 level and the volume of their imports of manufactured goods from the developing countries was only 3% higher. In the following 3 years, growth rates averaged 4.3% for GDP and 16.5%/year for the volume of manufactured imports, i.e. an apparent income elasticity of 3.8. The relevant results are 3.8 and 11.5%, corresponding to an apparent income elasticity of import demand of 3.0, if we limit our attention to the last 2 years on the grounds that the results for 1976 represented a 'rebound from the recession'.

At the same time, substantial differences are observed among industrial countries and country groups in regard to both their GDP growth rate and the rate of increase of their imports of manufactured goods from the developing countries. Japan leads in terms of the rate of GDP growth (3.6%) but trails the other industrial countries by a considerable margin as far as the growth of the volume of manufactured imports from the developing countries is concerned (3.0%/year), with an apparent income elasticity of import demand of 0.8 for the 1973–1978 period. Canada was second to Japan in terms of GDP growth rates (3.4%/year), and had the second-lowest growth rate of manufactured imports originating in the developing countries (6.8%), with an apparent income elasticity of 2.0.

The European Common Market and the European Free Trade Association had the lowest GDP growth rates (2.1 and 1.5%) and the highest apparent income elasticities of import demand (5.8 and 5.6), with the volume of manufactured imports from the developing countries rising at average annual rates of 12.1 and 8.4%, respectively. GDP growth rates in the United States equalled the average for the industrial countries in the period 1973–1978 (2.5%), while the rate of growth of imports (11.1%) and the apparent income elasticity of import demand (4.4) were slightly above the average.

Table 2 further shows that the volume of manufactured exports of the industrial countries to the developing countries increased at an average annual rate of 12.5% between 1973 and 1978, the relevant results being 24.2% to OPEC, and 7.2% to non-OPEC, countries. Relative rates of growth of exports and imports in value terms show identical results as the terms of trade in manufactured goods did not change between the two groups of countries.[7]

The time pattern of exports and imports, however, exhibited substantial variations. The volume of manufactured exports from the industrial countries to the OPEC countries grew by nearly one-half in 1974 and by more than one-half in 1975, reflecting the tripling of OPEC export earnings in 1974 and the adjustment to the higher level of earnings in 1975. But, the rate of growth of manufactured exports to the OPEC countries declined rapidly in subsequent years, with practically no change shown in volume terms in 1978. The results are explained by the slow-down in the rise of oil earnings in 1976 and 1977 and the absolute

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decline of these earnings in 1978.

The volume of manufactured exports to the non-OPEC developing countries increased by one-fourth in 1974, declined slightly in 1975, and remained practically unchanged in 1976. The relevant growth rates are 7.8 and 9.6% in 1977 and 1978, respectively. For the 1973–1978 period as a whole, these exports rose at an average annual rate of 7.2%, corresponding to an apparent income elasticity of import demand of 1.8 as the GDP of the non-OPEC developing countries grew 4.1%/year. The apparent income elasticity is 3.0 for the OPEC countries whose gross domestic product rose by 8.2%/year between 1973 and 1978.[8].

The combined GDP of the developing countries increased at an average annual rate of 5.3% between 1973 and 1978 as compared to a rise of 12.5%/year in the volume of their manufactured imports from the industrial countries, corresponding to an average apparent income elasticity of import demand of 2.4. The rate of growth of GDP was higher (6.2%) and that of manufactured imports from the industrial countries lower (8.2%) in the 1963–1973 period, when the apparent income elasticity of import demand was 1.3.[9] However, during the earlier period, the income and the import shares of the OPEC countries were much smaller.

### (c) *The policies applied*

Following the quadrupling of oil prices, the OPEC countries attempted to increase their absorption of manufactured imports at a rapid rate. While in 1974 these countries had an export surplus of $84 billion, the surplus fell to $53 billion in 1975 and to $43 billion by 1978.[10] Apart from the rising imports of the capital-surplus oil exporters, foreign borrowing on the part of the other OPEC countries contributed to this result.

Foreign borrowing also contributed to the high rate of growth of the manufactured imports of the non-OPEC developing countries from the industrial countries. The net overall trade deficit of these countries rose from $15 billion in 1973 to $37 billion by 1978,[11] with much of the increase being financed by borrowing abroad. Foreign borrowing permitted the non-OPEC developing countries to increase their import surplus in manufactured goods *vis-à-vis* the industrial countries from $23 billion in 1973 to $51 billion in 1978, notwithstanding their higher oil bill.

Foreign borrowing represented a policy response on the part of the non-OPEC developing countries to the oil crisis and the 1974–1975 world recession. The promotion of exports, to be discussed later, was another form of policy response. At the same time, the high and rising apparent income elasticity of import demand does not give evidence of overall import substitution in manufactured goods during this period.[12]

The rapid growth of their exports of manufactured goods to the non-OPEC developing countries favourably affected economic activity in the industrial countries. Such effects were of particular importance in 1974, when the volume of these exports rose by one-fourth while the industrial countries were sliding into recession. In recent years, too, the increase in the export surplus of the industrial countries in manufactured trade with the non-OPEC developing countries had a multiplier effect on their national economies as it was not fully offset by higher primary imports.

Notwithstanding the rise in their export surplus, the industrial countries' imports of manufactured goods from the developing countries grew rapidly, with the apparent income elasticity of import demand rising from 3.6 in 1963–1973 to 4.1 in 1973–1978. These results do not provide evidence of increased protectionism on the part of the industrial countries. While the effects of the 'new protectionism' were noticeable in 1977 when the volume of manufactured imports from the developing countries increased by only 9%, the rise was 16% in 1978 when improvements were made on the protection front.[13] Available information points to further rapid increases in 1979.[14]

The observed changes could not, however, be explained on the basis of demand considerations alone. While access to industrial country markets has provided opportunities for export expansion, the exports of manufactured goods from the developing countries had responded to the policies followed by these countries. A number of developing countries adopted an export-oriented strategy during the 1960s and have continued with this strategy after 1973. Available evidence suggests that countries following an export-oriented strategy were better able to surmount the adverse effects of the quadrupling of oil prices and the 1974–1975 world recession than countries with an import-substitution orientation.[15]

Although supply factors have had a crucial role in determining the overall rate of expansion of manufactured exports by the developing countries, the allocation of these exports among the industrial countries has been affec-

Table 3. *Imports of manufactured goods by industrial countries*

| | 1973 | | | 1978 | | | Incremental ratios (1973–1978) | | |
|---|---|---|---|---|---|---|---|---|---|
| | $M/GDP$ | $M_{LDC}/GDP$ | $M_{LDC}/M$ | $M/GDP$ | $M_{LDC}/GDP$ | $M_{LDC}/M$ | $\Delta M/\Delta GDP$ | $\Delta M_{LDC}/\Delta GDP$ | $\Delta M_{LDC}/\Delta M$ |
| United States | 3.28 | 0.57 | 17.37 | 4.60 | 1.00 | 21.74 | 6.71 | 1.69 | 25.17 |
| Excluding Canada | 2.49 | 0.57 | 22.90 | 3.65 | 1.00 | 27.42 | 5.50 | 1.69 | 30.70 |
| Canada | 14.83 | 0.43 | 2.90 | 15.29 | 0.61 | 3.99 | 16.05 | 0.87 | 5.42 |
| Excluding United States | 3.43 | 0.43 | 12.53 | 3.51 | 0.61 | 17.37 | 3.64 | 0.87 | 23.89 |
| EEC | 11.32 | 0.48 | 4.24 | 13.44 | 0.77 | 5.73 | 15.93 | 1.11 | 6.97 |
| Excluding intra-EEC trade | 3.86 | 0.48 | 12.45 | 4.89 | 0.77 | 15.74 | 6.09 | 1.11 | 18.23 |
| Excluding intra-European trade | 2.65 | 0.48 | 18.08 | 3.31 | 0.77 | 23.26 | 4.08 | 1.11 | 27.20 |
| EFTA | 18.82 | 0.48 | 2.55 | 18.34 | 0.62 | 3.38 | 13.15 | 0.56 | 4.26 |
| Excluding intra-EFTA trade | 15.38 | 0.48 | 3.12 | 15.38 | 0.62 | 4.03 | 11.36 | 0.56 | 4.93 |
| Excluding intra-European trade | 3.32 | 0.48 | 14.44 | 3.48 | 0.62 | 17.84 | 2.67 | 0.56 | 20.98 |
| Japan | 2.38 | 0.53 | 22.57 | 1.80 | 0.44 | 24.43 | 1.38 | 0.37 | 26.80 |
| Industrial Countries | 7.19 | 0.52 | 7.23 | 8.39 | 0.78 | 9.30 | 9.61 | 1.07 | 11.13 |
| Excluding US–Canada and intra-European trade | 2.60 | 0.52 | 20.03 | 3.17 | 0.78 | 24.58 | 3.78 | 1.07 | 28.27 |

Source: GATT, *International Trade*, 1978/79; OECD, *Economic Outlook* (December 1979) and *National Accounts of OECD Countries;* and United Nations, *Yearbook of National Accounts Statistics*, 1978.

Notes: $M$ = total imports of manufactured goods.
$M_{LDC}$ = manufactured imports from developing countries.
$GDP$ = gross domestic product.

ted by the trade policies followed by these countries. It has often been said that the United States has traditionally been more open to imports from developing countries than the other industrial nations. Data for 1973 offer only weak evidence in support of this proposition. Thus, excluding trade between the United States and Canada that takes place largely in the framework of multinational corporations and one-third of which is subject to free trade treatment under the US – Canada automotive agreement, as well as trade within the European free trade area in manufactured goods encompassing the EEC and EFTA, the ratios of imports from developing countries to the total imports of manufactures and to the gross domestic product were not substantially higher in the United States than in the EEC and Japan (Table 3).[16]

The increased opening of the American economy, together with the deterioration of its competitive position, contributed to rapid increases in US imports of manufactured goods between 1973 and 1978, with the developing countries increasing their share in the total. Thus, the incremental ratio of manufactured imports originating in the developing countries to the gross domestic product was substantially higher during this period in the United States (1.69) than in the European Common Market (1.11) although the differences are smaller as far as the incremental share of the developing countries in their manufactured imports (30.7 and 27.2%, respectively) is concerned.

The contrast with Japan is much more pronounced. With an apparent income elasticity of import demand of only 0.8, the ratio of Japan's manufactured imports from the developing countries to its GDP fell from 0.53 in 1975 to 0.44 in 1978, corresponding to an incremental ratio of 0.37 between 1973 and 1978. In the same period, the incremental share of imports from developing countries in the total imports of manufactured goods was 28.3% in Japan.

Japan used a variety of formal and informal measures to limit the imports of manufactured goods, in particular from developing countries. These measures were liberalized in 1978.[17] As a result, the volume of manufactured imports from the developing countries increased by more than one-fourth between 1977 and 1978,[18] following a decline in the 1973–1977 period.

A consideration of the imports of all manufactured goods originating in the developing countries does not suffice, however, to appraise the effects of the trade policies followed by the industrial countries. For this purpose, it is further necessary to examine the commodity composition of imports, since some products encounter non-tariff barriers in the industrial countries while others are subject only to tariffs. This question will be taken up in Section 2.

## 2. COMPARATIVE ADVANTAGE AND THE COMMODITY COMPOSITION OF TRADE IN MANUFACTURED GOODS

In an earlier paper,[19] the author has shown that the pattern of world exports of manufactured goods can be explained in terms of intercommodity differences in capital–labour ratios and intercountry differences in capital endowments. The indicators of comparative advantage derived in that paper will be utilized in the following to analyse the pattern of export–import ratios in manufactured trade between the industrial and the non-OPEC developing countries in 1973. Subsequent changes in the commodity composition of this trade will further be examined, with consideration given to the factors that influenced the observed results. Finally, the role of the newly-industrializing countries in the exports of manufactured goods from the developing countries will be noted.

### (a) *The structure of comparative advantage*

In order to examine the comparative advantages of the industrial and the developing countries in their mutual trade in manufactured goods, the capital–labour ratios reported in the earlier paper have been averaged in the 11 commodity category breakdown employed in GATT statistics, using US production data as weights.[20] The estimated ratios pertain to physical as well as to human capital. The former has been obtained as the ratio of the (physical) captial stock to employment; the latter has been estimated as the discounted value of the difference between the average and the unskilled wage, taken to represent the return on investment in human capital. The relevant data are shown in Table 4.[21]

Although the 11 commodity category scheme involves a considerable degree of aggregation, substantial differences are observed in capital–labour ratios among the individual categories. The ratio of physical capital per worker (expressed in 1000 US dollars per worker) is the highest for iron and steel (27.7) and for chemicals (21.4); it is the lowest for clothing (2.4) and for other consumer goods (6.7). The ratio of human capital per worker

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Table 4. *Comparative advantage ratios and trade in manufactured goods between industrial and developing countries*

| | Capital per worker | | | Export surplus* | | Export–import ratio* | | Ratio of 1978 to 1973 trade† | | | Ratio of NICs‡ in imports from non-OPEC LDCs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Physical human total ($1000) | | | 1973 ($ billion) | 1978 | 1973 | 1978 | Export non-OPEC | Import LDC | Export OPEC | |
| Iron and steel | 27.71 | 28.15 | 55.85 | 3.00 | 5.73 | 6.45 | 5.82 | 1.95 | 2.16 | 3.45 | 76 |
| Chemicals | 21.37 | 25.51 | 46.88 | 5.43 | 12.02 | 6.90 | 7.91 | 2.26 | 2.53 | 3.38 | 47 |
| Other semi-manufactures | 19.59 | 24.21 | 43.80 | −0.11 | 0.58 | 1.00 | 1.10 | 2.57 | 2.34 | 5.17 | 58 |
| Engineering products, subtotal | 9.61 | 29.38 | 38.99 | 18.52 | 45.16 | 6.01 | 4.61 | 2.59 | 3.38 | 5.74 | 83 |
| Machinery for specialized industries | 9.44 | 28.34 | 37.79 | 6.81 | 16.79 | 53.98 | 29.46 | 2.50 | 4.54 | 5.01 | 90 |
| Office and telecommunication equipment | 7.91 | 35.22 | 43.15 | 1.13 | 2.31 | 1.88 | 1.62 | 2.50 | 2.91 | 5.09 | 75 |
| Road motor vehicles | 12.89 | 25.40 | 38.39 | 3.39 | 8.76 | 38.67 | 21.37 | 2.64 | 4.78 | 5.31 | 91 |
| Other machinery and transport equipment | 9.66 | 30.27 | 39.93 | 6.62 | 16.80 | 7.07 | 5.20 | 2.70 | 3.67 | 6.81 | 77 |
| Household appliances | 8.29 | 39.09 | 47.38 | 0.47 | 0.31 | 1.42 | 1.08 | 2.56 | 3.36 | 5.43 | 95 |
| Textiles | 10.00 | 16.62 | 26.62 | 0.32 | 0.05 | 1.16 | 1.01 | 1.58 | 1.81 | 2.50 | 55 |
| Clothing | 2.37 | 11.00 | 13.37 | −3.03 | −8.75 | 0.11 | 0.09 | 2.18 | 2.81 | 5.88 | 81 |
| Other consumer goods | 6.73 | 25.99 | 32.72 | −0.86 | −3.70 | 0.80 | 0.49 | 2.55 | 3.22 | 7.24 | 90 |
| Manufactured goods, total | 11.89 | 26.11 | 38.00 | 23.29 | 51.14 | 2.50 | 2.20 | 2.41 | 2.74 | 5.04 | 75 |

Source: Capital per worker: Bela Balassa, 'A "stages approach" to comparative advantage', *op. cit.*
Exports and imports: GATT, *International Trade* 1978/79 and GATT tapes.

* Industrial countries' exports to, and imports from, the non-OPEC developing countries.
† Ratio of the industrial countries' exports and imports, respectively, in trade with developing countries.
‡ Newly industrializing countries, defined to include Argentina, Brazil, Chile, Mexico, Uruguay, Israel, Hong Kong, Korea, Singapore and Taiwan.

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is also the lowest for clothing (11.0), followed by textiles (16.6); it is the highest for household appliances (39.1) and for office and telecommunication equipment (35.2). Combining physical and human capital, iron and steel (55.9), household appliances (47.4) and chemicals (46.9) are at the upper, clothing (13.4) textiles (26.6) and other consumer goods (32.7) at the lower, end of the range (Table 4).

If engineering products are considered as a single group, 1973 export–import ratios in trade between the industrial countries and the non-OPEC developing countries largely correspond to the pattern of comparative advantage as represented by capital–labour ratios, the only exception being semi-manufactures.[22] As shown in Table 4, iron and steel and chemicals with the highest overall capital–labour ratios also had the highest export–import ratios (6.5 and 6.9, respectively) in 1973. Apart from semi-manufactures, engineering products are placed next in terms of overall capital–output ratios (39.0) as well as export–import ratios (6.0).

At the other extreme, the exports of the industrial countries to the non-OPEC developing countries hardly reached one-tenth of their imports in the case of clothing that exhibits by far the lowest capital–labour ratio. The next lowest export–import ratio (0.8) is shown for the other consumer goods category, including shoes, travel goods, toys, sports goods and a variety of miscellaneous products, which exhibit the second-lowest capital intensity.

A seemingly aberrant result is observed in the case of other semi-manufactures that had an export–import ratio of 1.0 in 1973, notwithstanding their relatively high capital–labour ratio (43.8). However, several of the commodities included in this category are natural resource products, which fact provides an advantage to developing countries that possess the resources in question. Also, the category is rather heterogeneous as it includes capital-intensive products, such as pulp and paper, as well as labour-intensive products, such as leather and rubber manufactures, when weighting by US production imparts an upward bias to the estimated average capital–labour ratio for the group as a whole.

Apart from their above-average capital intensity, the sophistication of the production process and the need for the availability of precision-engineered parts, components and accesssories limited the export possibilities of the developing countries in a variety of engineering products. These factors in large part explain the very high export–import ratios in the trade of the industrial countries with the non-OPEC developing countries in the case of machinery for specialized industries (54.0) and road motor vehicles (38.7). In turn, the export–import ratio was 7.1 for the other machinery and transport equipment category, which also includes some relatively simple products, such as bicycles.

Finally, 1973 export–import ratios were relatively low for office and telecommunication equipment (1.9) and for household appliances (1.4). In both instances, physical capital–labour ratios are substantially lower than average, although relatively high human capital intensity raises their overall capital–labour ratio. At the same time, within the first category, developing countries exported chiefly electronic components that are highly labour-intensive while a large share of exports in the second category were radios that are produced by relatively simple techniques.

We have further calculated weighted averages of capital–labour ratios for the exports and the imports of the industrial countries in their trade in manufactured goods with the non-OPEC developing countries, the weights being the value of exports and imports in the 11 commodity group breakdown. In 1973, the relevant ratios for exports (expressed in 1000 US dollars per worker) were 13.8 for physical capital and 27.5 for human capital, totalling 41.3. In turn, average capital–labour ratios for the manufactured imports of the industrial countries from the non-OPEC developing countries were 9.8, 25.1 and 34.8, respectively.

The results indicate the comparative advantages of the industrial countries in capital-intensive commodities *vis-à-vis* the non-OPEC developing countries. This conclusion applies also to the industrial countries and country groups, taken individually, with percentage differences in average capital–labour ratios for their exports and imports in trade in manufactured goods with the non-OPEC developing countries ranging between 18% in the United States and 36% in Canada. At the same time, for the industrial countries, taken together, as well as for the individual countries and country groups, the extent of comparative advantage *vis-à-vis* the non-OPEC developing countries appears to be greater in regard to physical than for human capital.

### (b) *Changes in the commodity composition of trade*, 1973–1978

#### (i) *Industrial-country exports*

In the exports of the industrial countries to OPEC in the 1973–1978 period, above-average

increases are shown for consumer goods; the ratio of 1978 to 1973 exports was 5.3 for motor vehicles, 5.4 for household appliances, 5.9 for clothing, and 7.2 for other consumer goods as against an overall average of 5.0.[23] In turn, the lowest ratios are observed in the case of iron and steel (3.5), chemicals (3.4) and textiles (2.5). Finally, machinery and equipment exhibited average ratios (5.0–5.1), except for the high ratio shown for the 'other-machinery-and-transport-equipment' category (6.8) where aircraft and other military equipment are of importance.

Given the limited domestic production of manufactured goods in most of the OPEC countries, these results tend to reflect patterns of domestic use. It would then appear that, on the whole, increases in oil earnings were used more to increase consumption and military expenditure than to raise investment levels.

Iron and steel, chemicals and textiles experienced smaller than average increases in industrial-country exports of manufactured goods to the non-OPEC developing countries also. In these three commodity categories, the ratios of 1978 to 1973 exports were 2.0, 2.3 and 1.6, respectively, as compared to an overall average of 2.4. The relevant ratio is 2.6 for the consumer goods categories, the only exception being clothing (2.2). Finally, the ratio of 1978 to 1973 imports of machinery and equipment was 2.5, except that the import of military equipment raised this ratio to 2.7 for the other-machinery-and-transport-equipment category.

These results conflict with the popular image, which has found its way into economic models, that the non-OPEC developing countries would limit their consumer good imports in favour of the imports of machinery and equipment. In fact, with clothing imports being small in absolute terms, the imports of consumer goods appear to have increased somewhat more than the imports of capital goods, and increases in the imports of military equipment were even larger.

(ii) *Industrial-country imports*

In the imports of the industrial countries from the non-OPEC developing countries, the largest increases are observed in the specialized machinery and the road motor vehicles categories; the ratios of 1978 to 1973 exports are 4.5 and 4.8, respectively, as compared to an overall average of 2.7. But this result was achieved from a very small base; in fact, between 1973 and 1978, the trade surplus of the industrial countries with the non-OPEC developing countries increased from $6.8 billion to $16.8 billion in specialized machinery and from $6.6 billion to $16.8 billion in motor vehicles.

The next largest increases, with the ratio of 1978 to 1973 imports being 3.7 and 3.4, took place in the other-machinery-and-transport-equipment and the household appliances categories. Shipbuilding and the exportation of parts and components of machinery and transport equipment importantly contributed to the growth of imports originating in the non-OPEC developing countries in the first case, and radios and T.V. sets in the second. But while the trade surplus of the industrial countries declined in the second category, a substantial increase is shown for the first where aircraft and other military products are of importance.

All in all, the industrial countries' imports of engineering products from the non-OPEC developing countries shows above-average increases, with the ratio of 1978 to 1973 imports being 3.4. As a result of these changes, by 1978 engineering products came to account for 29.4% of the manufactured imports of the industrial countries from the non-OPEC developing countries as compared to 23.9% in 1973.[24] In absolute terms, the most important categories are other machinery and transport equipment ($4.0 billion in 1978), office and telecommunication equipment ($3.8 billion), and household appliances ($3.7 billion).

The ratio of 1978 to 1973 imports from the non-OPEC developing countries is the lowest for textiles (1.8) that have long been subject to restrictions in the industrial countries. The industrial countries have also benefited from technological change that has led to the application of more capital-intensive techniques. Nevertheless, with textile imports from the non-OPEC developing countries rising more rapidly than exports to these countries, the trade surplus of the industrial countries in textiles declined from $0.3 billion in 1973 to practically zero in 1978.

In the same period, the trade deficit of the industrial countries with the non-OPEC developing countries in clothing rose from $3.0 billion to $8.8 billion. As noted earlier, the comparative advantage of the non-OPEC developing countries is the strongest in clothing; nor have there been technological changes unfavourable to them in this industry. Thus, notwithstanding the limitations imposed in the framework of the Multifibre Arrangement, the ratio of 1978 to 1973 imports was 2.8 for clothing, exceeding the overall average.

The industrial countries also experienced a rise in their trade deficit in other consumer goods with the non-OPEC developing countries

from $0.9 billion in 1973 to $3.7 billion in 1978, with the ratio of 1978 to 1973 exports being 3.2. The commodities included in this category have relatively high unskilled-labour intensity and average skill intensity. With few exceptions, these commodities have not been subject to restrictions in the industrial countries.

Finally, increases in the imports of the industrial countries from the non-OPEC developing countries were below-average in the case of intermediate products, where the relevant ratios are 2.2 for iron and steel, 2.5 for chemicals, and 2.3 for semi-manufactures. These products have the highest physical capital–labour ratio, although, as we have seen, the semi-manufactures category also includes natural-resource and labour-intensive products.

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### (c) *Some implications of the results*

It appears that the OPEC as well as the non-OPEC developing countries have utilized increases in foreign exchange availabilities to expand the imports of consumer goods and military equipment more rapidly than the imports of investment goods, Apart from conflicting with popular preconceptions, these results raise questions about the allocation of foreign exchange between current expenditures and investment in these countries.

It further appears that the developing countries have made little headway in exporting commodities that are highly intensive in physical capital, require sophisticated technology, or necessitate the availability of precision-engineered parts, components and accessories. Several of the developing countries, however, have made progress in exporting skilled-labour-intensive commodities, such as ships and T.V. sets, as well as parts, components and accessories of engineering products to the industrial countries. Also, growth has been rapid in the exports of other consumer goods that have average skill intensity and are relatively intensive in unskilled labour.

A few exceptions apart, products in these commodity categories do not encounter non-tariff barriers in the industrial countries. It should be added, however, that the exports of textiles and clothing, subject to limitations first under the Cotton Textiles and, subsequently, the Multifibre Arrangement, have also experienced a high growth rate. The exports of these commodities increased at an average annual rate of 7.7% in volume terms as compared to the average rate of expansion of manufactured exports of 10.2%.

The bulk of the manufactured exports of the non-OPEC developing countries to the industrial countries originates in the newly-industrializing developing countries. This group has been defined to include developing countries where *per capita* incomes exceeded $1100 in 1978 and manufacturing production accounted for at least 20% of the gross domestic product. The countries in question are Argentina, Brazil, Chile, Mexico, Uruguay, Israel, Hong Kong, Korea, Singapore and Taiwan.

As shown in Table 3, in 1978 the share of the newly-industrializing countries in the manufactured imports of the industrial countries from the non-OPEC developing countries was 75%. This compares with the 46% share of these countries in the combined GDP of the non-OPEC developing countries. If comparisons are made with all (OPEC and non-OPEC) developing countries, the relevant shares are 73 and 33%. The four Far Eastern countries in the group, Hong Kong, Korea, Singapore and Taiwan, accounted for 5% of the gross domestic product and 52% of the manufactured exports of the developing countries to developed country markets.[25]

Compared to the other non-OPEC developing countries, the newly-industrializing countries tend to export relatively skill-intensive commodities. They have a high export share in engineering products (83%) that have higher skill-intensity than any other commodity category. Within the engineering group, household appliances with a 95% export share of the newly-industrializing countries are the most skill-intensive. The export share of the newly-industrializing countries is also high in other consumer goods (90%) that have average skill-intensity, and it is the lowest in textiles (55%) that have low skill-intensity. They also have low shares in chemicals (47%) and in other semi-manufactures (58%) that are intensive in physical capital and several of which embody natural resources. And while the newly-industrializing countries have an above-average share in clothing exports (81%) that are intensive in unskilled labour, more sophisticated items have a higher than average share in their exports of these commodities.

## 3. CONCLUSIONS

This paper has examined changes in the pattern of trade in manufactured goods in the 1973–1978 period. The growth of manufactured exports of the industrial countries to the developing countries accelerated during this

period, with an average annual rate of increase of 12.5% as compared to 8.2% between 1963 and 1973. As the gross domestic product of the developing countries rose 6.2%/year in the first period and 5.3%/year in the second, their apparent income elasticity of import demand increased from 1.3 in 1963–1973 to 2.4 in 1973–1978.

The rise in the apparent income elasticity of import demand in the developing countries reflects both the growth of export earnings of the OPEC countries and the increase of foreign borrowing by the non-OPEC developing countries. In fact, the apparent income elasticity of import demand was 3.0 for the OPEC countries and 1.8 for the non-OPEC developing countries in the 1973–1978 period.

Increased exports of manufactured goods to the developing countries favourably affected economic activity in the industrial countries, in particular in 1974 when the volume of these exports rose by one-fourth while the industrial countries were sliding into a recession. At the same time, the developing countries have assumed increased importance as markets for the industrial countries, accounting for 47.3% of their exports (excluding US–Canada trade and trade within the European free trade area) and for 5.1% of their production of manufactured goods in 1978.[26]

The industrial countries experienced average annual increases of 4.6% in their GDP and 16.5% in their imports of manufactured goods from the developing countries between 1963 and 1973, corresponding to an apparent income elasticity of import demand of 3.6. The income elasticity increased to 4.1 in the 1973–1978 period, when the decline in the rate of growth of GDP (2.5% in 1973–1978) exceeded that in the rate of growth of imports (10.2%).

The results show the effects of the slowdown of economic growth in the industrial countries on their imports from the developing countries, but do not provide evidence of the effects of increased protectionism that would have been expected to lead to a fall in the income elasticity of import demand. Protection, however, appears to have limited the growth of imports into Japan while the imports of textiles and clothing into all the industrial countries have been unfavourably affected by the operation of the Multifibre Arrangement. Nevertheless, these exports rose at an average annual rate of 7.7% in the 1973–1978 period and came to account for 59.8% of the imports (again excluding US–Canada trade and trade within the European free trade area), and 4.9% of the domestic consumption, of textiles and clothing in the industrial countries in 1978. The relevant shares for manufactured imports, taken together, were 24.6 and 1.5%.[27]

The results further provide evidence of the changing pattern of comparative advantage, with the newly-industrializing countries increasingly exporting skill-intensive commodities and the less-developed countries starting to export unskilled-labour intensive commodities. In turn, the exports of the industrial countries continue to be dominated by products that are intensive in physical capital, require sophisticated technology, or necessitate the availability of precision-engineered parts, components and accessories.

It would appear, then, that the expansion of manufactured trade between industrial and developing countries has made it possible for these countries to specialize according to their comparative advantage. This pattern of specialization, in turn, has favourable effects in resource allocation and economic growth in the countries participating in international trade.

## NOTES

1. Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, the Netherlands and the United Kingdom.

2. Austria, Finland, Iceland, Norway, Portugal, Sweden and Switzerland.

3. Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia and the United Arab Emirates.

4. The countries of Latin America and the Caribbean, Africa (other than South Africa), Asia (other than Japan), Oceania (other than Australia and New Zealand), excluding centrally-planned economies and the OPEC countries.

5. GATT, *International Trade*, 1978/79 (Geneva: 1979), Tables B–F – the data for 1978 are preliminary.

6. The expression 'apparent' income elasticity is used here to refer to the fact that this measure neglects the effects of changes in relative prices on the volume of imports. Nor does the measure distinguish between the effects on imports of changes in population and in *per capita* incomes.

7. GATT, *International Trade*, 1978/79, *op. cit.*, and Table 1.

8. United Nations, *Yearbook of National Accounts Statistics*, 1978, and World Bank Data Base.

9. Estimated by regression analysis from data published in United Nations, *Monthly Bulletin of Statistics and Yearbook of National Accounts Statistics*.

10. GATT, *International Trade*, 1978/79, Table G.

11. *ibid*.

12. On the relevant methodology and its application to three developing countries, see Bela Balassa, 'Policy responses to external shocks in selected Latin American countries', presented at the NBER/FIPE/BEBR Conference on Trade Prospects among the Americas: Latin American Diversification and the New Protectionism, held in Sao Paulo Brazil on 24–26 March 1980, and to be published in the *Quarterly Review of Economics and Business* and in a Portuguese translation in *Estudios Economicos*.

13. Bela Balassa, 'The Tokyo Round and the developing countries', *Journal of World Trade Law* (March/April 1980), pp. 93–118.

14. GATT, 'International trade in 1979 and present prospects: first assessment by the GATT Secretariat', (Geneva: 15 February 1980).

15. See Bela Balassa, *The Newly-Industrializing Countries After the Oil Crisis* (Washington, D.C.: World Bank, forthcoming).

16. The differences are larger if comparison is made with Canada and, as far as the share of developing countries in total manufactured imports is concerned, with EFTA. In the case of Canada, protection against LDC products affected the outcome. In turn, the results for the EFTA countries reflect the importance of the United States as a supplier.

17. 'The Tokyo Round and the developing countries', *op. cit*.

18. For sources, see Table 2.

19. 'A "stages approach" to comparative advantage', in Irma Adelman (ed.), *Economic Growth and Resources*, Vol. 4, *National and International Issues* (London: Macmillan, 1979), pp. 121–156; published in an abbreviated form as 'The changing pattern of comparative advantage in manufactured goods', *Review of Economics and Statistics* (May 1979), pp. 259–266.

20. The capital–labour ratios themselves have been derived from the data of the US Industrial Census. Their use in the present context assumes equal substitution elasticities between capital and labour across industries.

21. In addition to these 'stock' coefficients, in the earlier paper 'flow' coefficients are also reported, representing profits per worker in the case of physical capital and the average wage in the case of human capital. The stock coefficients are preferred, however, in view of fluctuations in profit rates over time and the inclusion of the unskilled wage in the average wage figure.

22. The OPEC countries have been excluded from these comparisons as they export practically no manufactured goods.

23. For lack of price indices on a commodity group basis, export ratios have been expressed in terms of current prices.

24. Table 3 and the sources cited therein.

25. Data for the gross domestic product pertain to the year 1975 and have been expressed in 1975 prices and exchange rates. Import data have been derived from the trade statistics of the industrial countries and overestimate the shares of Hong Kong and Singapore in the total by including their re-exports.

26. Bela Balassa, 'Prospects for trade in manufactured goods between industrial and developing countries, 1978–1990' (Washington, D.C.: World Bank, June 1980), mimeo.

27. *ibid*.

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# Poverty and Unemployment in India: An Analysis of Recent Evidence

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**Summary.** – This paper examines the association between poverty and unemployment using the data collected by the Indian National Sample Survey from October 1972 to September 1973. Data is analysed for two states of India: Gujarat and Maharshtra. Contrary to the widely accepted view, supported even in the ILO reports, that the poor are too poor to remain unemployed, this paper highlights a clear association between unemployment and poverty (as measured by the *per capita* expenditure of households). Poverty is, however, more widespread than unemployment.

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## 1. INTRODUCTION

The extent of association between poverty and unemployment in the developing countries is often a subject of considerable debate. The origin of the debate can be traced to a scepticism regarding the validity of the low levels of unemployment reported by successive labour force surveys in developing countries. Some analysts argue that the poor are too poor to remain unemployed and that their low levels of income compel them to work irrespective of the level of reward.[1] Furthermore, many of those few who get classified as unemployed in the labour force surveys are believed to be the better-off. This view questions the validity of the now conventional concepts of unemployment and labour force that have been developed in the western countries after the Depression of the 1930s and have since been adopted and propagated by international agencies like the International Labour Office in developing countries.

This paper seeks to demonstrate that with some adaptation, the conventional approach to the measurement of unemployment can provide better estimates of the underutilization of labour time available in a country; with proper tabulation and analysis, the data show a clear association between poverty and unemployment in India, although poverty is certainly more widespread than unemployment. Empirical evidence is also provided supporting an earlier hypothesis that an important explanation for low levels of unemployment reported in the labour force surveys of several developing countries (such as India) is the status distribution of workers, particularly the predominance of the self-employed and family helpers among workers.

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* The author was an economist in the Development Research Center of the World Bank when the paper was written. The views expressed are those of the author and do not necessarily reflect those of the World Bank.

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The first part of this paper briefly outlines the main features of the approach to the measurement of unemployment adopted in India during the past decade in two nationwide surveys which were conducted in 1972–1973 (from October to September) and 1977–1978 (from July to June) as part of the 27th and 32nd Rounds of the National Sample Survey. Since very little of the information gathered in the 32nd Round has been released so far, the concepts and definitions used in the 27th Round provide the basis for discussion.

The main body of the paper is devoted to an examination of the 27th Round data on unemployment for the 'state samples'[2] canvassed by the states of Gujarat and Maharashtra in Western India. These data are used to examine not only: (i) the extent of association between poverty and unemployment; but also (ii) the 'usual' labour force and employment characteristics of those who were unemployed during the entire reference week (i.e. the week preceding the day of interview),[3] and (iii) the share of different categories of workers in the total unutilized labour time (or persondays of unemployment).

Finally, the last part of the this paper examines the likely wider validity of the data from the states for the rest of India as well as for other countries of the developing world.

## 2. ALTERNATE METHODS OF MEASURING UNEMPLOYMENT

The 27th and 32nd Rounds have utilized simultaneously three alternative methods of measuring unemployment. These methods include the definition of unemployment used in many countries of the world which classifies as unemployed a person without any work and seeking (or available for) it during the reference week (i.e. the week preceding the day of interview).[4] The activity of the reference week is described as the current activity and those unemployed during the reference week are called the 'currently unemployed'. This method continues the approach used in the earlier rounds of the Indian National Sample Survey (since 1958–1959) and permits comparison with past data as well as with other countries of the world. The resulting estimates can be called the incidence of 'week-long' unemployment.

In addition to the data on current activities, the respondents were also asked about their 'usual' activities. The original intention of the group that designed the schedules was to identify usual activities as the 'principal activity of the year preceding the day of interview' on the ground that the living standards of the household would be conditioned more by the 'usual' activities of the previous year rather than by the activity of the reference week (which may be a transient seasonal activity).[5] The instructions to investigators used a rather vague definition of a usual activity as one indicated by the 'normal working pattern' of respondents, pursued 'over a long period in the past' and 'likely to continue in the future'.[6] Essentially, this was an approximation of the 'gainful-worker' approach to the measurement of the economically active population. Persons reported to be unemployed in terms of their usual activities were likely to be 'chronically unemployed', and an estimation of their number was considered important.[7] Data on 'usual' activities of respondents also provide some interesting information on what the currently unemployed persons usually do.

A third estimate of unemployment was obtained by asking persons classified as 'employed' during the reference week (i.e. currently employed) about their activities during each day of the reference week. These data often described as the time disposition data for the reference week, were recorded in units of half-days rather than hours worked.[8] They permit a more comprehensive measure of unemployment, including the reported underemployment of the 'currently employed'. Once again, we can estimate the persondays of unemployment according to the various usual activity categories of the labour force.

A fourth method, that can be used only when the time disposition data for the reference week are available, would abandon the priority rule used under the current-activity approach which classified as employed a person who worked for even one day. This method, which I would call the major-activity approach, would classify a person as unemployed if he is unemployed for a major part of the week, i.e. if the unemployed days exceed the days when he is employed.[9] In discussing the data for Gujarat and Maharashtra, this fourth approach will be illustrated.

## 3. ESTIMATES OF UNEMPLOYMENT ACCORDING TO ALTERNATE CRITERIA

For rural and urban areas of India as a whole, Table 1 shows the 27th Round (1972–1973) estimates of the incidence of unemployment according to three alternative approaches,

Table 1. *Incidence of unemployment in India, according to alternative criteria, 27th Round of the NSS, October 1972–September 1973*

| Sex | Usual-activity criterion | | Current-activity criterion | | Persondays criterion | |
|---|---|---|---|---|---|---|
| | Rural India | Urban India | Rural India | Urban India | Rural India | Urban India |
| | | | (A) Incidence of unemployment | | | |
| Males | 1.16 | 4.79 | 3.03 | 5.97 | 6.75 | 7.99 |
| Females | 0.48 | 6.05 | 5.51 | 9.78 | 9.92 | 12.58 |
| Persons | 0.91 | 5.03 | 3.87 | 6.55 | 7.83 | 8.85 |
| | | | (B) Percentage of unemployed* | | | |
| Males | 0.75 | 2.87 | 1.94 | 3.55 | 6.75 | 7.99 |
| Females | 0.18 | 1.00 | 1.90 | 1.44 | 9.92 | 12.58 |
| Persons | 0.47 | 1.99 | 1.92 | 2.56 | 7.83 | 8.85 |
| | | | (C) Labour force participation rates* | | | |
| Males | 64.59 | 59.96 | 64.07 | 59.46 | NA | NA |
| Females | 37.71 | 16.53 | 34.50 | 15.68 | NA | NA |
| Persons | 51.40 | 39.60 | 49.58 | 39.07 | NA | NA |

Source: NSS, Draft Report No. 255/10, pp. 36, 129.

* Figures are arithmetic averages of the estimates for four subrounds. They relate to persons aged 5 years and over. Percentages of unemployed according to usual- and current-activity criteria show unemployed as percentage of population aged 5 years and over.

The 17th Round estimates of the incidence of unemployment (according to the current activity criterion) during July 1961–June 1962 were as follows:

| | Males | Females | Persons |
|---|---|---|---|
| Rural India | 3.7 | 8.5 | 5.1 |
| Urban India | 3.0 | 3.3 | 3.1 |

as well as the labour force participation rates. The participation rates are almost the same according to both usual- and current-activity criteria but unemployment rates differ significantly. In rural areas, the usual-activity criterion shows a very low incidence of unemployment, significantly below the estimate based on the current-activity criterion; in urban areas the differences between the two sets of estimates are relatively small.[10] It is not possible to estimate the participation rates in terms of persondays from the data published so far, but they would presumably be lower than those based on the other two criteria, insofar as many persons (particularly females) report themselves as outside the labour force on some days within the reference week. The incidence of unemployment is, however, the highest in terms of the persondays criterion; once again, the differences are larger for rural areas where one would *a priori* expect higher underemployment among agricultural workers than in urban areas.

## 4. ASSOCIATION BETWEEN POVERTY AND UNEMPLOYMENT

The widely used index of poverty in India is the monthly *per capita* expenditure (MPCE) of a household, a proxy for income. The 27th Round data on unemployment have been tabulated separately for six discrete MPCE intervals; the lowest of these includes a very small percentage of total households, but because of the very large size of the sample, the estimates for even this bottom group may be reasonably stable. Table 2 shows the incidence of unemployment in terms of the persondays approach for each MPCE group by subround. Figure 1 shows the same data graphically. A clear inverse association between MPCE and the incidence of unemployment is evident in each subround in both rural and urban areas of the country.

For Gujarat and Maharashtra, Table 3 shows the incidence of unemployment in terms of

Table 2. *Incidence of unemployment (persondays unemployed as per cent of persondays in labour force) by monthly per capita expenditure (MPCE) rural and urban India 27th Round of the NSS, October 1972–September 1973*

| | Rural India | | | | | | Urban India | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPCE group (Rs) | October–December 1972 | January–March 1973 | April–June 1973 | July–September 1973 | October 1972–September 1973 | % share of households October 1972–September 1973 | October–December 1972 | January–March 1973 | April–June 1973 | July–September 1973 | October 1972–September 1973 | % share of households October 1972–September 1973 |
| | | | Males | | | | | | Males | | | |
| Up to 11.00 | 15.3 | 19.5 | 23.6 | 11.7 | 17.5 | | 14.7 | 52.8 | 22.9 | 38.0 | 32.1 | |
| 11.00–20.99 | 9.2 | 12.8 | 13.7 | 11.9 | 11.9 | | 13.7 | 12.8 | 18.6 | 16.3 | 15.5 | |
| 21.00–33.99 | 6.9 | 8.6 | 9.8 | 7.4 | 8.2 | NA | 9.5 | 10.6 | 10.8 | 12.5 | 10.9 | NA |
| 34.00–54.99 | 5.2 | 6.3 | 7.2 | 5.5 | 6.1 | | 8.0 | 9.7 | 9.4 | 9.9 | 9.3 | |
| 55.00–99.99 | 4.2 | 4.8 | 4.5 | 4.5 | 4.5 | | 7.1 | 6.2 | 7.0 | 7.4 | 6.9 | |
| 100.00 and above | 3.4 | 2.9 | 3.0 | 2.8 | 3.0 | | 4.1 | 3.7 | 4.6 | 4.4 | 4.2 | |
| All | 6.0 | 8.7 | 7.9 | 6.2 | 7.2 | | 7.3 | 7.9 | 8.1 | 8.5 | 8.0 | |
| | | | Females | | | | | | Females | | | |
| Up to 11.00 | 33.8 | 26.8 | 29.9 | 27.1 | 29.4 | | 17.5 | 30.6 | 22.2 | 32.9 | 25.8 | |
| 11.00–20.99 | 14.8 | 18.6 | 20.2 | 17.2 | 17.7 | | 18.8 | 17.6 | 17.9 | 13.7 | 17.0 | |
| 21.00–33.99 | 9.8 | 13.1 | 17.4 | 12.0 | 13.1 | NA | 13.0 | 14.2 | 18.0 | 15.2 | 15.1 | NA |
| 34.00–54.99 | 7.8 | 9.7 | 12.4 | 8.4 | 9.6 | | 11.9 | 11.7 | 15.0 | 12.9 | 12.9 | |
| 55.00–99.99 | 6.2 | 7.4 | 8.0 | 6.3 | 7.0 | | 12.6 | 13.3 | 15.7 | 12.7 | 13.6 | |
| 100.00 and above | 3.6 | 2.0 | 7.1 | 3.4 | 3.3 | | 11.2 | 8.8 | 11.5 | 9.8 | 10.3 | |
| All | 9.3 | 11.5 | 14.2 | 10.0 | 11.3 | | 12.6 | 12.8 | 15.5 | 13.0 | 13.5 | |
| | | | Persons | | | | | | Persons | | | |
| Up to 11.00 | 23.9 | 22.1 | 26.1 | 17.6 | 22.4 | 0.7 | 15.8 | 42.5 | 22.7 | 35.8 | 29.2 | 0.3 |
| 11.00–20.99 | 11.3 | 15.0 | 16.1 | 14.0 | 14.1 | 9.8 | 15.1 | 14.4 | 18.3 | 15.6 | 15.9 | 4.5 |
| 21.00–33.99 | 7.9 | 10.1 | 12.2 | 8.9 | 9.8 | 30.1 | 10.4 | 11.5 | 12.5 | 13.2 | 11.9 | 19.2 |
| 34.00–54.99 | 6.0 | 7.3 | 8.7 | 6.4 | 7.1 | 35.2 | 8.8 | 10.1 | 10.5 | 10.5 | 10.0 | 27.4 |
| 55.00–99.99 | 4.8 | 5.5 | 5.5 | 5.0 | 5.2 | 19.0 | 7.9 | 7.2 | 8.2 | 8.2 | 7.9 | 28.3 |
| 100.00 and above | 3.4 | 2.6 | 3.9 | 2.9 | 3.2 | 5.1 | 5.0 | 4.3 | 5.4 | 5.0 | 4.9 | 20.2 |
| All | 7.1 | 8.6 | 9.8 | 7.4 | 8.2 | 100.0 | 8.4 | 8.7 | 9.4 | 9.3 | 9.0 | 100.0 |

Note: The figures for the entire Round are unweighted averages of the estimates for four subrounds. As a result, they are slightly different from the widely quoted estimates reporting the incidence of unemployment in terms of persondays as 7.8% in rural India and 8.8% in urban India.

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Table 3. *Incidence of unemployment according to alternative criteria, by sex and decile of monthly* per capita *expenditure (MPCE), Gujarat and Maharashtra*, 1972–1973

| MPCE decile | Rural Gujarat | | | Urban Gujarat | | | Rural Maharashtra | | | Urban Maharashtra | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| (A) Usual-activity data (in terms of persons) | | | | | | | | | | | | |
| 1 | 0.9 | 0.5 | 0.7 | 3.6 | 3.1 | 3.5 | 1.1 | – | 0.6 | 6.1 | 1.2 | 4.6 |
| 2 | 0.4 | 0.9 | 0.6 | 5.0 | 4.2 | 4.8 | 0.5 | 0.1 | 0.3 | 4.5 | 1.7 | 3.8 |
| 3 | 0.9 | 0.4 | 0.7 | 5.4 | – | 4.4 | 0.3 | – | 0.1 | 5.0 | 3.2 | 4.5 |
| 4 | 0.9 | 0.2 | 0.6 | 4.1 | 4.1 | 4.1 | 0.5 | – | 0.3 | 5.1 | 3.5 | 4.8 |
| 5 | 1.0 | – | 0.6 | 3.2 | 3.2 | 3.2 | 1.2 | – | 0.6 | 6.2 | 7.2 | 6.3 |
| 6 | 0.2 | 0.5 | 0.3 | 3.6 | 5.2 | 3.9 | 0.6 | – | 0.3 | 4.6 | 8.9 | 5.1 |
| 7 | 0.7 | – | 0.4 | 3.1 | 4.9 | 3.3 | 0.7 | 0.3 | 0.5 | 3.9 | 4.2 | 3.9 |
| 8 | 0.6 | 0.6 | 0.6 | 3.7 | 2.8 | 3.6 | 1.3 | – | 0.7 | 3.4 | 8.2 | 3.9 |
| 9 | 0.7 | – | 0.4 | 3.6 | 4.6 | 3.7 | 0.4 | – | 0.2 | 2.8 | 4.7 | 3.0 |
| 10 | 1.1 | 0.4 | 0.9 | 2.6 | 19.4 | 4.7 | 0.3 | 0.4 | 0.4 | 0.9 | 4.1 | 1.4 |
| All | 0.7 | 0.4 | 0.6 | 3.8 | 4.3 | 3.9 | 0.7 | 0.1 | 0.4 | 4.4 | 3.8 | 4.3 |
| (B) Current-activity data* (in terms of persons) | | | | | | | | | | | | |
| 1 | 3.6 | 4.1 | 3.8 | 5.7 | 6.6 | 5.9 | 4.3 | 10.9 | 7.2 | 8.6 | 6.0 | 7.8 |
| 2 | 2.2 | 3.3 | 2.6 | 6.0 | 4.7 | 5.7 | 3.2 | 6.2 | 4.5 | 5.8 | 3.1 | 5.2 |
| 3 | 2.0 | 2.4 | 2.2 | 6.3 | 7.7 | 6.6 | 2.3 | 5.3 | 3.7 | 5.4 | 5.2 | 5.4 |
| 4 | 1.9 | 2.7 | 2.3 | 4.5 | 6.7 | 4.9 | 2.1 | 6.3 | 4.0 | 5.7 | 5.9 | 5.7 |
| 5 | 2.8 | 3.2 | 2.9 | 3.5 | 5.8 | 3.9 | 4.5 | 2.9 | 3.8 | 6.6 | 7.4 | 6.7 |
| 6 | 0.7 | 1.9 | 1.2 | 3.9 | 12.6 | 5.1 | 2.2 | 5.4 | 3.6 | 4.8 | 10.6 | 5.6 |
| 7 | 1.1 | 1.6 | 1.3 | 3.9 | 6.7 | 4.3 | 1.5 | 2.3 | 1.8 | 4.3 | 8.4 | 4.7 |
| 8 | 0.9 | 1.4 | 1.1 | 4.3 | 4.9 | 4.4 | 3.2 | 3.5 | 3.3 | 3.5 | 7.4 | 3.9 |
| 9 | 1.2 | 2.1 | 1.5 | 4.2 | 5.8 | 4.4 | 2.2 | 3.0 | 2.5 | 2.9 | 6.6 | 3.3 |
| 10 | 2.6 | 1.4 | 2.2 | 2.7 | 17.4 | 4.5 | 1.5 | 1.5 | 1.5 | 1.1 | 4.5 | 1.6 |
| All | 1.9 | 2.5 | 2.2 | 4.6 | 7.3 | 5.1 | 2.7 | 5.0 | 3.7 | 5.0 | 6.0 | 5.2 |
| (C) Time disposition data (in terms of persondays) | | | | | | | | | | | | |
| 1 | 10.1 | 12.8 | 11.1 | 9.9 | 13.3 | 10.8 | 13.1 | 20.6 | 6.3 | 13.5 | 13.7 | 13.5 |
| 2 | 7.3 | 11.0 | 8.8 | 10.2 | 10.9 | 10.3 | 11.1 | 15.7 | 13.1 | 9.0 | 8.2 | 8.8 |
| 3–4 | 5.9 | 8.7 | 7.0 | 7.6 | 12.5 | 8.5 | 7.7 | 14.1 | 10.5 | 7.9 | 10.4 | 8.4 |
| 5–6 | 5.3 | 6.9 | 5.9 | 5.5 | 12.1 | 6.3 | 9.2 | 12.3 | 10.5 | 6.7 | 12.2 | 7.5 |
| 7–8 | 3.5 | 5.2 | 4.1 | 6.0 | 6.7 | 6.1 | 6.8 | 9.2 | 7.8 | 4.7 | 10.6 | 5.3 |
| 9 | 3.4 | 4.6 | 3.8 | 6.0 | 7.1 | 6.1 | 5.8 | 9.3 | 7.1 | 3.5 | 7.7 | 4.0 |
| 10 | 3.9 | 4.2 | 4.0 | 3.3 | 21.5 | 5.3 | 3.2 | 5.9 | 4.0 | 1.3 | 4.6 | 1.8 |
| All | 5.5 | 7.9 | 6.4 | 6.9 | 11.7 | 7.7 | 8.2 | 12.8 | 10.0 | 6.8 | 10.5 | 7.4 |

* In estimating these figures, priority is given to a person's classification as employed; work for even a half day during the reference week is considered adequate to classify a person as employed. Persons classified as unemployed had not worked at all during the reference week; they could have been outside the labour force during a part of the week.

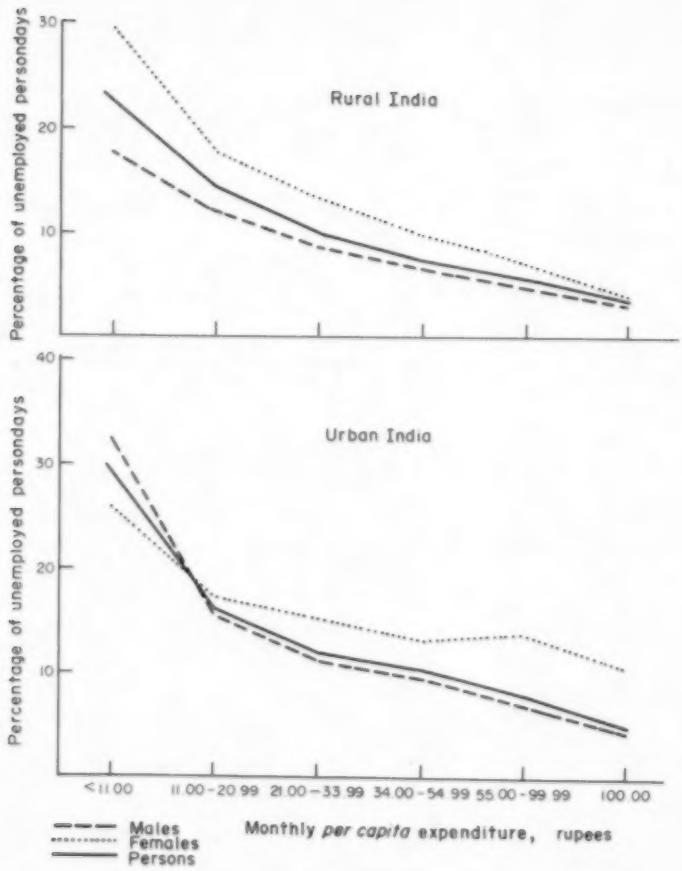


Figure 1. *Incidence of unemployment in terms of persondays and monthly* per capita *expenditure of households, rural and urban India*, 1972–1973.

usual- and current-activity data as well as persondays for different deciles of households.[11] While estimating unemployment in terms of persondays, the intermediate six deciles were condensed into three quintiles.

While the data on the incidence of unemployment in terms of usual or current activity do not show a clear consistent relationship with MPCE decile of households,[12] a more or less steady inverse relationship is evident between MPCE decile and the incidence of unemployment in terms of persondays. Except for some erratic deviations, the labour force in the bottom deciles of households clearly suffers from a significantly higher incidence of unemployment and/or underemployment. The inter-decile variations in unemployment are, of course, much smaller than the differentials in *per capita* expenditure. And although poverty is more widespread than unemployment, there is a clear association between the two: the poor did report non-availability of opportunities for work to a considerably greater extent than the average level in the two states.[13]

It has been argued that unemployment (again in terms of persondays in 1972–1973), in different regions of rural India does not seem to be related to the productivity of land.[14] Indeed, in 56 regions of rural India, for which data on the unemployment rate during 1972–1973 are available, a positive correlation of 0.30 (significant at the 5% level) is observed between unemployment and average agricultural output per hectare (in rupees, 1970–1971 to 1972–1973).[15] Apparently, the value of agricultural output per hectare is not a good index of the extent of poverty in a region. Land productivity necessarily depends on factors

such as fertility of the soil, rainfall and irrigation, frequency and pattern of cropping etc. Also, the regions with high agricultural productivity may attract unemployed labour from neighbouring areas.

## 5. UNEMPLOYED AND UNEMPLOYMENT ACCORDING TO USUAL ACTIVITY

To understand the correlates of poverty and unemployment more clearly, we shall examine the 'usual' activities of persons classified as 'currently unemployed' and of those reporting unemployed persondays. The incidence of unemployment according to different criteria will also be estimated separately for each usual-activity category. As noted earlier, these categories take into account the main sector of employment (farm or non-farm) as well as the status or class of worker (self-employed, employees and family helpers). Among the employees, a distinction was made between 'a regular salaried employee/wage labourer' and 'a casual employee/wage labourer'.

There may be some scepticism about the extent to which it is possible to identify some of these usual-activity groups, particularly the 'casual labourers', because of the high probability that individuals move across these categories during different periods of the year or even over a short span of time. However, persons experienced in conducting field work in India do not envisage any difficulty in identifying households or workers whose principal activity during the year (or a reference week) in terms of labour time disposition (or source of income) is working as an employee or casual labourer.[16]

Table 4 shows the usual-activity distribution of persons classified as 'currently unemployed' according to the conventional priority criterion as well as our major-activity criterion, the incidence of unemployment, and the participation rates for Gujarat and Maharashtra. The data can be compared with the activity distribution of those classified as 'usually employed' shown in Table 5. The estimated incidence of unemployment for each usual-activity category is shown in Table 6.[17]

According to Table 4, both in rural and urban areas, few of the 'currently unemployed' were outside the 'labour force' in terms of their usual activity.[18] Secondly, a large majority of the 'currently unemployed' in rural areas were employed in terms of their usual activity. On the other hand, a large majority (over 60%) of the currently unemployed in urban areas were 'usually unemployed' also. Both in rural and urban areas, the proportion of the 'usually employed' was higher among the currently unemployed females than among males. The rural–urban differences are consistent with the view that rural unemployment is partly a seasonal phenomenon.

Table 6 shows that the rural employees in Gujarat suffered from an unemployment rate almost three times as high as that of all the employed in rural areas, and the casual labourers fared even worse. In rural Maharashtra, the difference was smaller, but the casual labourers were clearly the worst off. In urban Gujarat and Maharashtra, the incidence of week-long unemployment (based on the priority criterion) among the employees appears to be the same as or even lower than that among all usually employed persons because of the relative predominance of the regular non-farm workers (shown in Table 5). But the casual labourers in urban areas of Gujarat suffered more than twice as high an incidence of week-long unemployment as all usually employed persons; in urban Maharashtra, the difference between the casual labourers and other usually employed persons was greater. The casual labourers of urban Gujarat fared even worse if unemployment is defined in terms of the major activity of the week.

Since even the major-activity criterion does not take full account of underemployment or unemployment *within* the reference week, which may be particularly important for the self-employed and family workers, Table 7 shows the incidence of unemployment in terms of persondays in the two states. The low level of unemployment in terms of persondays among the regular employees is only to be expected; but it is indeed surprising that the self-employed and family helpers reported a lower-than-average incidence of unemployed persondays. The explanation probably lies in work-spreading in various ways.

Table 8 shows the percentage of total unemployed persondays in rural and urban areas of Gujarat and Maharashtra that was accounted for by persons reporting specified usual activities. (The residual percentage, i.e. the difference between 100% and the total percentage of unemployed persondays accounting for all usually employed persons together, was attributable to the usually 'unemployed' persons.) Once again, the casual labourers, both in rural and urban areas, were much worse off in terms of *unemployed persondays* than workers in other categories; they accounted for 58 and 71% of the total unemployed persondays in rural areas

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Table 4. *Usual activities of persons classified as unemployed during the reference week under alternative criteria, Gujarat and Maharashtra*, 1972–1973

| Usual activity | Unemployed during the reference week (priority criterion) | | | Unemployed during the reference week (major-activity criterion) | | | Unemployed during the reference week (priority criterion) | | | Unemployed during the reference week (major-activity criterion) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| | Rural Gujarat | | | | | | Urban Gujarat | | | | | |
| Self-employed | 20.2 | 2.1 | 11.8 | 26.3 | 3.0 | 15.5 | 7.1 | 5.1 | 6.5 | 10.2 | 8.5 | 9.6 |
| On farm | 15.7 | 2.0 | 9.3 | 21.5 | 3.0 | 12.9 | 1.3 | 2.3 | 1.5 | 2.6 | 1.8 | 2.3 |
| Non-farm | 4.6 | 0.1 | 2.5 | 4.8 | N | 2.6 | 5.8 | 2.8 | 5.0 | 7.6 | 6.7 | 7.3 |
| Employee | 30.4 | 66.2 | 46.9 | 47.4 | 75.7 | 60.5 | 10.3 | 22.0 | 13.2 | 22.1 | 32.2 | 24.8 |
| Regular on farm | N | N | N | 0.7 | 1.1 | 0.9 | N | N | N | N | N | N |
| Regular non-farm | 0.3 | N | 0.2 | 0.5 | N | 0.3 | 2.8 | N | 2.1 | 3.1 | N | 2.3 |
| Casual labourer | 30.1 | 66.2 | 46.7 | 46.2 | 74.5 | 59.3 | 7.4 | 22.0 | 11.1 | 19.0 | 32.2 | 22.5 |
| Unpaid helper | 8.0 | 16.7 | 12.0 | 7.6 | 14.6 | 10.8 | 0.6 | 13.5 | 3.9 | 0.5 | 12.2 | 3.5 |
| Farm | 8.0 | 15.4 | 11.4 | 7.1 | 13.4 | 10.0 | 0.3 | 12.6 | 3.4 | 0.3 | 11.5 | 3.1 |
| Non-farm | N | 1.3 | 0.6 | 0.5 | 1.1 | 0.8 | 0.3 | 0.9 | 0.5 | 0.3 | 0.7 | 0.4 |
| All empoyed | 58.7 | 85.0 | 70.7 | 81.4 | 93.2 | 86.8 | 18.0 | 40.6 | 23.6 | 32.8 | 53.0 | 37.9 |
| Unemployed | 36.5 | 13.7 | 26.0 | 16.5 | 6.1 | 11.6 | 82.3 | 56.5 | 75.7 | 67.3 | 48.8 | 61.4 |
| Outside labour force | 4.9 | 1.4 | 3.4 | 2.2 | 0.7 | 1.5 | N | 2.8 | 0.7 | N | 2.2 | 0.6 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Labour force participation rate | 53.5 | 36.1 | 45.0 | 53.5 | 35.4 | 46.6 | 49.6 | 11.0 | 30.8 | 49.5 | 10.8 | 30.6 |
| Incidence of unemployment | 1.9 | 2.5 | 2.2 | 4.3 | 5.8 | 4.9 | 4.6 | 7.3 | 5.1 | 5.6 | 9.4 | 6.3 |
| | Rural Maharashtra | | | | | | Urban Maharashtra | | | | | |
| Self-employed | 13.3 | 6.8 | 9.6 | 16.9 | 4.1 | 10.1 | 3.2 | 5.8 | 3.6 | 5.7 | 7.9 | 6.2 |
| On farm | 11.2 | 6.3 | 8.4 | 14.2 | 3.8 | 8.7 | 0.9 | 0.6 | 0.8 | 1.6 | 0.7 | 1.4 |
| Non-farm | 2.1 | 0.5 | 1.2 | 2.7 | 0.3 | 1.4 | 2.3 | 5.2 | 2.8 | 4.1 | 7.2 | 4.8 |
| Employee | 55.8 | 76.3 | 67.5 | 62.5 | 78.7 | 71.0 | 10.3 | 24.7 | 13.2 | 19.5 | 39.7 | 24.2 |
| Regular on farm | 0.4 | – | 0.2 | 0.2 | 0.1 | 0.1 | – | – | – | – | – | – |
| Regular non-farm | 0.6 | – | 0.3 | 0.6 | 0.2 | 0.4 | 1.7 | 0.2 | 1.4 | 2.2 | 0.7 | 1.8 |
| Casual labourer | 54.8 | 76.3 | 67.0 | 61.7 | 78.4 | 70.5 | 8.6 | 24.5 | 11.8 | 17.3 | 39.0 | 22.4 |
| Unpaid helper | 8.1 | 15.0 | 12.1 | 8.9 | 16.2 | 12.7 | 1.3 | 4.2 | 1.9 | 1.5 | 5.0 | 2.3 |
| On farm | 7.7 | 14.8 | 11.8 | 8.3 | 15.8 | 12.2 | 0.3 | 2.7 | 0.8 | 0.3 | 2.4 | 0.8 |
| Non-farm | 0.4 | 0.2 | 0.3 | 0.6 | 0.4 | 0.5 | 1.0 | 1.5 | 1.1 | 1.2 | 2.6 | 1.5 |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All employed | 77.2 | 98.1 | 89.2 | 88.3 | 99.0 | 93.8 | 14.8 | 34.7 | 18.7 | 26.7 | 52.6 | 32.7 |
| Unemployed | 21.0 | 0.8 | 9.5 | 10.5 | 0.4 | 5.1 | 84.1 | 59.2 | 79.1 | 72.1 | 43.3 | 65.4 |
| Outside labour force | 1.9 | 1.1 | 1.5 | 1.3 | 0.6 | 0.9 | 1.3 | 5.9 | 2.1 | 1.1 | 4.2 | 1.9 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Labour force participation rate | 62.1 | 45.6 | 53.9 | 61.8 | 44.5 | 53.2 | 57.5 | 14.1 | 37.3 | 57.4 | 13.8 | 37.1 |
| Incidence of unemployment | 2.7 | 5.0 | 3.7 | 5.7 | 9.0 | 7.1 | 5.0 | 6.0 | 5.2 | 5.9 | 8.6 | 6.3 |

Note: N: negligible. Persons classified as unemployed according to the priority criterion had not worked at all during the reference week. However, they could have been outside the labour force during a part (even a major part) of the week. Those classified as unemployed according to the time disposition criterion were seeking or available for work for a major part of the week (or else their days of unemployment exceeded the number of days when they had work). Rates for Gujarat relate to the entire population whereas those for Maharashtra refer to the population aged 5 years and over. All figures have been rounded independently.

Table 5. *Activity distribution of the usually employed in Gujarat and Maharashtra*, 1972–1973

| Usual activity | Rural Gujarat | | | Urban Gujarat | | |
|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons |
| Self-employed | 60.4 | 17.5 | 43.3 | 32.9 | 21.1 | 30.9 |
| On farm | 54.6 | 16.4 | 39.4 | 5.0 | 3.3 | 4.8 |
| Non-farm | 5.8 | 1.1 | 3.9 | 27.9 | 17.8 | 26.2 |
| Employee | 27.5 | 25.1 | 26.6 | 61.1 | 51.5 | 59.4 |
| Regular on farm | 3.2 | 1.5 | 2.5 | 0.7 | 0.6 | 0.7 |
| Regular non-farm | 7.0 | 1.1 | 4.6 | 50.8 | 27.0 | 46.7 |
| Casual labourers | 17.4 | 22.5 | 19.4 | 9.7 | 23.8 | 12.1 |
| Family helper | 12.1 | 57.4 | 30.1 | 5.9 | 27.4 | 10.0 |
| On farm | 11.3 | 55.6 | 28.9 | 0.6 | 14.6 | 3.1 |
| Non-farm | 0.8 | 1.8 | 1.2 | 5.3 | 12.8 | 6.6 |
| All employed | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | Rural Maharashtra | | | Urban Maharashtra | | |
| Usual activity | Males | Females | Persons | Males | Females | Persons |
| Self-employed | 38.6 | 7.2 | 24.6 | 24.7 | 17.4 | 23.4 |
| On farm | 32.0 | 5.8 | 20.3 | 2.7 | 1.9 | 2.6 |
| Non-farm | 6.6 | 1.3 | 4.2 | 22.0 | 15.5 | 20.8 |
| Employee | 44.1 | 44.9 | 44.4 | 68.5 | 63.6 | 67.6 |
| Regular on farm | 7.7 | 0.3 | 4.4 | 1.0 | 0.6 | 0.9 |
| Regular non-farm | 5.7 | 0.8 | 3.5 | 59.1 | 35.6 | 54.8 |
| Casual labourers | 30.6 | 43.8 | 36.4 | 8.4 | 27.4 | 11.8 |
| Family helper | 17.4 | 48.0 | 31.0 | 6.8 | 19.0 | 9.0 |
| On farm | 15.9 | 45.8 | 29.3 | 1.1 | 7.5 | 2.3 |
| Non farm | 1.5 | 2.1 | 1.8 | 5.7 | 11.5 | 6.8 |
| All employed | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: All figures have been rounded independently.

of Gujarat and Maharashtra, respectively. (The self-employed farmers, on the other hand, accounted for only 17 and 10% of the unemployed persondays in the two states, even though during 9 out of the 12 months of the survey covered by the 27th Round, Gujarat and Maharashtra were affected by a severe scarcity.)

Our data for Gujarat and Maharashtra provide the first direct evidence to explain the very low estimates of unemployment for rural India as reported by several labour force and unemployment surveys. The rural self-employed and the family workers, who account for over 50% of the labour force, are much less willing to search or to report their search and/or availability for work than are the employees. The data confirm the wider validity of some suggestive evidence provided by small-scale village surveys in which farmers indicated a distinct unwillingness to work outside their own farms.[19] Thus the status composition of the rural working force, with a predominance of the self-employed and unpaid family helpers, is an important explanation for the low estimates of rural unemployment.[20]

## 6. INCIDENCE OF UNEMPLOYMENT AND THE PROPORTION OF CASUAL LABOUR IN DIFFERENT STATES IN INDIA

Since the casual labourers are the critical group reporting a very high incidence of unemployment in terms of 'current activity' as well as 'persondays', the same relationship would be expected between the reported level of unemployment and the proportion of casual labourers among the usually employed. Table 9 reports the results of an exploratory exercise conducted for the 17 major states of India. The underlying data for rural India have been shown in Figure 2 and Table A2 in the Appendix. The coefficients of correlation between the proportion of casual labourers and the incidence of unemployment in terms of persondays

Table 6. *Incidence of unemployment in terms of current activity by the nature of usual activity, Gujarat and Maharashtra* 1972–1973

| Usual activity | Incidence of unemployment (priority criterion) | | | Incidence of unemployment (major-activity criterion) | | |
|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons |
| | | | Rural Gujarat | | | |
| Self-employed | 0.6 | 0.3 | 0.6 | 1.9 | 1.0 | 1.7 |
| On farm | 0.6 | 0.3 | 0.5 | 1.7 | 1.0 | 1.6 |
| Non-farm | 1.5 | 0.3 | 1.4 | 3.6 | 0.3 | 3.2 |
| Employees | 2.1 | 6.6 | 3.8 | 7.4 | 17.0 | 11.0 |
| Regular on farm | – | – | – | 1.1 | 4.3 | 1.7 |
| Regular non-farm | 0.1 | – | 0.1 | 0.3 | 0.3 | 0.2 |
| Casual labourer | 3.4 | 7.3 | 5.2 | 11.5 | 18.6 | 14.8 |
| Family helpers | 1.3 | 0.7 | 0.9 | 2.7 | 1.4 | 1.7 |
| On farm | 1.4 | 0.7 | 0.8 | 2.7 | 1.4 | 1.6 |
| Non-farm | – | 1.8 | 1.1 | 2.6 | 3.6 | 3.2 |
| All employed | 1.1 | 2.1 | 1.5 | 3.5 | 5.5 | 4.2 |
| | | | Urban Gujarat | | | |
| Self-employed | 1.0 | 1.8 | 1.1 | 1.8 | 3.9 | 2.0 |
| On farm | 1.2 | 4.8 | 1.7 | 2.9 | 4.8 | 3.1 |
| Non-farm | 1.0 | 1.2 | 1.1 | 1.6 | 3.5 | 1.8 |
| Employees | 0.8 | 3.3 | 1.2 | 2.1 | 6.0 | 2.7 |
| Regular on farm | – | – | – | – | – | – |
| Regular non-farm | 0.3 | – | 0.3 | 0.3 | – | 0.3 |
| Casual labourer | 3.6 | 7.0 | 4.8 | 11.6 | 13.1 | 12.1 |
| Family helpers | 0.5 | 3.8 | 1.9 | 0.5 | 3.7 | 2.4 |
| On farm | 2.3 | 6.7 | 5.9 | 2.3 | 7.5 | 6.6 |
| Non-farm | 0.3 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 |
| All employed | 0.9 | 3.1 | 2.1 | 1.9 | 5.1 | 2.5 |
| | | | Rural Maharashtra | | | |
| Self-employed | 1.0 | 4.9 | 1.4 | 2.5 | 5.5 | 2.9 |
| On farm | 1.0 | 5.7 | 1.5 | 2.6 | 6.4 | 3.0 |
| Non-farm | 0.9 | 1.8 | 1.0 | 2.4 | 1.8 | 2.3 |
| Employees | 3.5 | 8.3 | 5.6 | 8.2 | 15.5 | 11.4 |
| Regular on farm | 0.1 | – | 0.1 | 0.1 | 2.1 | 0.2 |
| Regular non-farm | 0.3 | – | 0.3 | 0.6 | 2.4 | 0.8 |
| Casual labourer | 5.0 | 8.5 | 6.8 | 11.8 | 15.9 | 13.9 |
| Family helpers | 1.3 | 1.6 | 1.5 | 2.9 | 3.2 | 3.1 |
| On farm | 1.4 | 1.7 | 1.6 | 2.9 | 3.2 | 3.2 |
| Non-farm | 0.6 | 0.5 | 0.5 | 2.4 | 1.8 | 2.1 |
| All employed | 2.1 | 4.9 | 3.3 | 5.1 | 9.0 | 6.8 |
| | | | Urban Maharashtra | | | |
| Self-employed | 0.7 | 2.2 | 0.9 | 1.4 | 4.2 | 1.8 |
| On farm | 1.8 | 2.7 | 1.8 | 3.6 | 4.4 | 3.7 |
| Non-farm | 0.5 | 2.1 | 0.7 | 1.2 | 4.1 | 1.5 |
| Employees | 0.8 | 2.5 | 1.1 | 1.8 | 5.7 | 2.4 |
| Regular on farm | – | – | – | – | – | – |
| Regular non-farm | 0.1 | – | 0.1 | 0.2 | 0.1 | 0.2 |
| Casual labourer | 5.5 | 6.2 | 5.7 | 13.1 | 14.2 | 13.5 |
| Family helpers | 1.0 | 1.5 | 1.2 | 1.3 | 2.5 | 1.7 |
| On farm | 1.4 | 2.4 | 2.1 | 1.4 | 3.2 | 2.4 |
| Non-farm | 0.9 | 0.9 | 0.9 | 1.3 | 2.0 | 1.5 |
| All employed | 0.8 | 2.3 | 1.0 | 1.7 | 4.8 | 2.2 |

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Table 7. *Incidence of unemployment during the reference week in terms of persondays (unemployed persondays as per cent of persondays in labour force) according to the usual activity of the employed, rural and urban Gujarat and Maharashtra*, 1972–1973

| Usual activity | Rural Gujarat | | | Urban Gujarat | | | Rural Maharashtra | | | Urban Maharashtra | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| Self-employed | 2.52 | 1.73 | 2.40 | 2.97 | 4.32 | 3.26 | 3.68 | 7.69 | 4.11 | 1.87 | 4.63 | 2.22 |
| On farm | 2.40 | 1.79 | 2.26 | 2.93 | 5.98 | 3.25 | 3.72 | 9.19 | 4.28 | 4.06 | 5.22 | 4.23 |
| Non-farm | 4.23 | 0.80 | 3.88 | 2.98 | 4.02 | 3.26 | 3.48 | 2.41 | 3.33 | 1.60 | 4.58 | 1.97 |
| Employees | 10.14 | 20.01 | 13.74 | 3.26 | 7.80 | 3.90 | 12.18 | 20.57 | 15.78 | 2.69 | 8.09 | 3.55 |
| Regular on farm | 0.87 | 3.89 | 1.57 | – | – | – | 0.30 | 1.56 | 0.34 | 0.39 | 1.07 | 0.45 |
| Regular non-farm | 0.36 | 2.56 | 0.57 | 1.06 | 0.48 | 1.00 | 1.25 | 3.75 | 1.51 | 0.51 | 0.52 | 0.52 |
| Casual labourer | 15.86 | 22.08 | 18.66 | 15.27 | 16.70 | 15.73 | 17.37 | 21.06 | 19.27 | 18.88 | 19.87 | 19.25 |
| Unpaid helper | 3.39 | 2.98 | 3.10 | 3.15 | 6.61 | 4.69 | 4.11 | 5.04 | 4.71 | 2.09 | 2.90 | 2.38 |
| On farm | 3.29 | 2.92 | 3.02 | 4.50 | 12.03 | 14.42 | 4.22 | 5.15 | 4.82 | 2.39 | 3.94 | 3.28 |
| Non-farm | 4.77 | 4.86 | 4.82 | 2.98 | 1.19 | 2.41 | 2.95 | 2.86 | 2.91 | 2.03 | 2.23 | 2.09 |
| All employed | 4.78 | 7.48 | 5.73 | 3.16 | 6.78 | 3.77 | 7.55 | 12.68 | 9.66 | 2.46 | 6.63 | 3.16 |
| All persons in labour force (including the usually unemployed) | 5.49 | 7.88 | 6.36 | 6.90 | 11.65 | 7.66 | 8.88 | 14.62 | 11.16 | 7.29 | 11.71 | 8.02 |
| Percentage of total unemployed persondays accounted for by the usually employed | 85.05 | 94.10 | 89.12 | 43.98 | 54.89 | 47.18 | 91.36 | 98.53 | 95.09 | 34.31 | 58.80 | 40.21 |

Table 8. *Percentage of total unemployed persondays accounted for by persons with specific usual activity, Gujarat and Maharashtra, 1972–1973*

| Usual activity | Rural Gujarat | | | Urban Gujarat | | |
|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons |
| Self-employed | 27.4 | 3.9 | 16.7 | 13.3 | 9.0 | 12.4 |
| On farm | 23.0 | 3.8 | 14.3 | 2.0 | 1.4 | 1.9 |
| Non-farm | 4.4 | 0.1 | 2.4 | 11.3 | 7.6 | 10.5 |
| Employee | 50.3 | 69.8 | 59.1 | 28.1 | 32.7 | 29.5 |
| Regular on farm | 0.5 | 0.8 | 0.7 | 0 | 0 | 0 |
| Regular non-farm | 0.5 | 0.4 | 0.4 | 7.6 | 1.1 | 6.0 |
| Casual labourers | 49.3 | 68.6 | 58.0 | 20.5 | 31.6 | 23.5 |
| Family helper | 7.5 | 20.3 | 13.2 | 2.6 | 13.2 | 5.3 |
| On farm | 6.8 | 19.3 | 12.4 | 0.4 | 12.0 | 3.3 |
| Non-farm | 0.7 | 1.0 | 0.8 | 2.2 | 1.2 | 1.9 |
| All employed | 85.2 | 94.0 | 89.0 | 44.0 | 54.9 | 47.1 |
| | Rural Maharashtra | | | Urban Maharashtra | | |
| Self-employed | 16.8 | 3.9 | 10.1 | 6.2 | 6.8 | 6.3 |
| On farm | 14.1 | 3.6 | 8.7 | 1.5 | 0.7 | 1.3 |
| Non-farm | 2.7 | 0.3 | 1.4 | 4.7 | 0.1 | 5.0 |
| Employee | 65.8 | 76.8 | 71.6 | 26.4 | 7.6 | 31.5 |
| Regular on farm | 0.3 | 0.04 | 0.2 | 0.1 | 0.1 | 0.1 |
| Regular non-farm | 0.9 | 0.3 | 0.6 | 4.4 | 1.8 | 3.8 |
| Casual labourers | 64.6 | 76.5 | 70.8 | 21.9 | 45.7 | 27.6 |
| Family helper | 8.7 | 17.8 | 13.4 | 1.9 | 4.5 | 2.5 |
| On farm | 8.2 | 17.3 | 12.9 | 0.4 | 2.4 | 0.8 |
| Non-farm | 0.5 | 0.5 | 0.5 | 1.5 | 2.1 | 1.7 |
| All employed | 91.3 | 98.5 | 95.1 | 34.5 | 58.9 | 40.3 |

Note: The usually 'unemployed' accounted for the remaining unemployed persondays.

in the rural areas of the 17 states are 0.82, 0.90 and 0,85, respectively, all statistically significant at the 1% level. In urban areas, the correlation between the two variables is significant at the 1% level for males (0.64) but not even at the 5% level for females or the two sexes together. According to the results presented in Table 9, a one percentage point increase in the proportion of casual labourers in the rural labour force would result in an increase of about 0.4 percentage points in the reported incidence of unemployment in terms of persondays. *Prima facie*, the results for Gujarat and Maharashtra showing the importance of the share of casual labour for the reported incidence of unemployment, seem to receive support from the aggregate data for other states of India.[21]

A few other characteristics of the casual-labourer group are worth examining since it is the most adversely affected by unemployment and/or underemployment. The occupational distribution of casual labourers is reported in Table 10. In rural areas, a large majority of casual labourers (over 84%) were agricultural labourers;[22] most of the remainder were in the amorphous 'other' category. Likewise, agricultural labourers also constituted a significant proportion of urban casual labourers, most of whom work in the rural fringe of urban centres. Among others, 'labourers not elsewhere classified' were an important group. A significant percentage of the urban casual employees were: (a) spinners, weavers etc. (the textile industry is quite important both in Gujarat and Maharashtra and employs several workers on a daily basis); (b) domestic helpers; (c) construction workers; and (d) carpenters, cabinet makers and related wood workers. These are indeed the activities where casual labourers are likely to be employed. 'Porters' often used as an example of disguised underemployment, are grouped with operators of mechanized transport, stationary engines and related equipment and may indeed be the most important subgroup among casual labourers in that category.

Tables 11 and 12 show selected characteristics of casual labourers in rural and urban

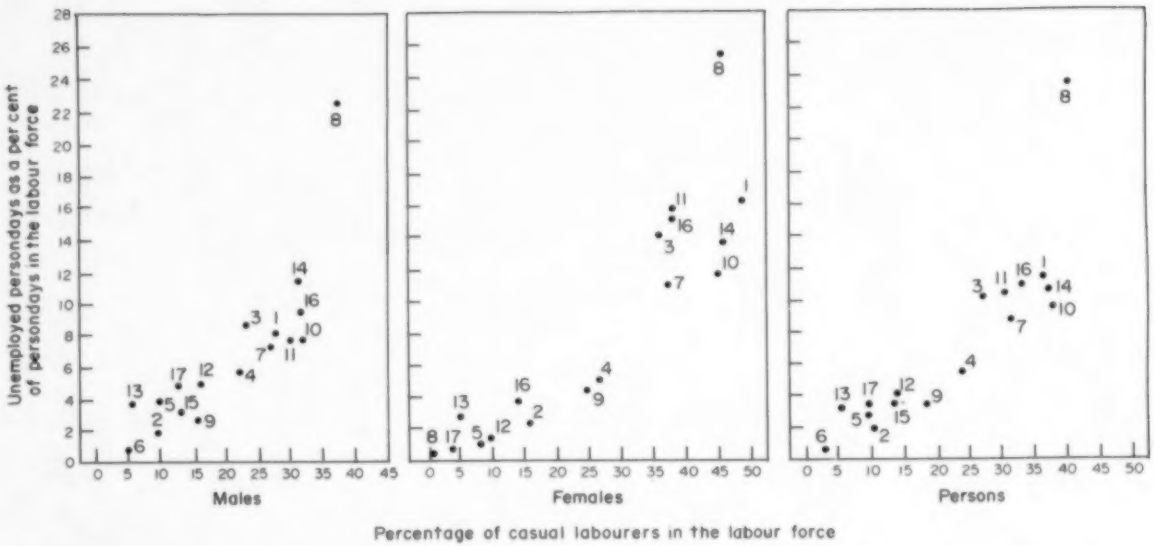
Unemployed persondays as a per cent of persondays in the labour force
Males
Females
Persons
Percentage of casual labourers in the labour force

Figure 2. *Incidence of unemployment and the percentage of casual labourers in the labour force, rural India*, 1972–1973.
Note: Numbers adjoining the points refer to the serial number of the states in the list below:

1. Andhra Pradesh
2. Assam
3. Bihar
4. Gujarat
5. Hanjana
6. Himachal Pradesh
7. Karnataka
8. Kerala
9. Madhya Pradesh
10. Maharashtra
11. Orissa
12. Punjab
13. Rajasthan
14. Tamil Nadu
15. Uttar Pradesh
16. West Bengal
17. Delhi

Table 9. *Relationship between the percentage of unemployed persondays and the percentage of casual labourers among workers in rural and urban areas of major states of India*, 1972–1973

| | Regression coefficient | Constant term | Correlation coefficient | $R^2$ | $R^2$ adjusted |
|---|---|---|---|---|---|
| Rural areas | | | | | |
| Males | 0.396* | −1.339 | 0.82 | 0.67 | 0.64 |
| | (5.47) | (0.86) | | | |
| Females | 0.395* | −1.729 | 0.90 | 0.81 | 0.79 |
| | (7.90) | (1.13) | | | |
| Persons | 0.373* | −1.144 | 0.85 | 0.72 | 0.70 |
| | (6.22) | (0.75) | | | |
| Urban areas | | | | | |
| Males | 0.422* | 3.327 | 0.64 | 0.40 | 0.36 |
| | (3.19) | (2.04) | | | |
| Females | 0.246 | 6.868† | 0.44 | 0.19 | 0.15 |
| | (1.88) | (2.70) | | | |
| Persons | 0.112 | 6.650* | 0.35 | 0.12 | 0.07 |
| | (1.46) | (4.29) | | | |

* Significant at the 1% level.

† Significant at the 5% level.

Figures in parentheses are the '*t*'-values. A logarithmic transformation of both the dependent and independent variables increases the percentage of explained variance to 0.76, 0.88 and 0.85 for rural males, females and persons, respectively. The corresponding figures for urban males, females and persons are 0.41, 0.08 and 0.41. The regressions are based on the data for 17 major states of India (excluding Meghalaya and Jammu and Kashmir).

areas, respectively, of the two states. A comparative perspective is provided by showing the distribution of both casual labourers and all workers according to various characteristics. For rural labourers, we have shown the household occupation or the main source of income[23] as well as the size of holding possessed (i.e. land owned *plus* land leased in *minus* land leased out) by the household.[24] These characteristics are not quite relevant for urban casual labourers, for whom only the distribution by age, educational attainment and MPCE decile is shown.

Considering first the household occupation, Table 11 shows that three-fourths of the rural casual labourers belonged to households for which agricultural labour was reported as the main source of income. Regarding their land holdings, over 70 and 53% of casual labourers in rural areas of Gujarat and Maharshtra, respectively, were from households with less than 1 acre of land. The casual labourers are obviously poor with respect to the most important asset in rural areas. (Both these observations are entirely consistent with the reported occupations of casual labourers according to Table 10.)

Data on other characteristics of both rural and urban casual labourers show them to be far behind other workers with respect to 'human capital,' somewhat younger than other workers, and substantially overrepresented in the bottom deciles of households in terms of their *per capita* expenditure.[25] Two–five per cent of the casual labourers appear to be even in the top quintile in terms of their *per capita* expenditure, partly because they had significantly lower-than-average household size, low age dependency ratios and much higher-than-average participation rates.[26] On the whole, therefore, the casual labourers seem to be a particularly disadvantaged group, both in rural and urban areas.

## 7. DISCUSSION AND IMPLICATION OF FINDINGS

It seems clear from the evidence presented that casual labourers should be a high-priority group in any programme to alleviate poverty and reduce unemployment.

Secondly, as the recent Draft Five Year Plan prepared by the Indian Planning Commission[27] clearly recognizes, the urban industrial sector in India is unlikely to provide much opportunity for increased employment to the rural

Table 10. *Occupational distribution of casual labourers in Gujarat and Maharashtra, October 1972–September 1973*

| Occupation | Urban Gujarat | | | Urban Maharashtra | | | Rural Gujarat | | | Rural Maharashtra | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| 1. Agricultural labourers | 21.6 | 38.7 | 27.5 | 33.2 | 62.8 | 45.7 | 84.1 | 87.0 | 85.4 | 85.7 | 90.9 | 88.5 |
| 2. Other agriculture | 1.2 | 1.5 | 1.3 | 1.1 | 0.6 | 0.9 | 2.5 | 0.7 | 1.7 | 1.5 | 0.5 | 1.0 |
| 3. Spinners, weavers etc. | 4.2 | 3.6 | 4.0 | 7.7 | 1.1 | 4.9 | 0.3 | 0.0 | 0.2 | – | – | – |
| 4. Bricklayers and construction workers | 4.0 | 3.4 | 3.8 | 8.8 | 2.9 | 6.3 | 0.5 | 0.6 | 0.5 | 2.0 | 1.1 | 1.5 |
| 5. Carpenters and related wood workers | 2.6 | – | 1.7 | 3.8 | – | – | 2.2 | | (included in 'other') | | | |
| 6. Mechanized transport drivers, stationary engine material handling and related equipment operators | 1.7 | – | 1.1 | 3.7 | 0.4 | 2.3 | | | (included in 'other') | | | |
| 7. Housekeepers, matrons, cooks, waiters, building caretakers, sweepers, cleaners and related | 3.5 | 8.9 | 5.4 | 4.8 | 5.2 | 4.9 | | | (included in 'other') | | | |
| 8. Labourers not elsewhere classified | 49.1 | 39.3 | 45.7 | 25.4 | 22.4 | 24.1 | | | (included in 'other') | | | |
| 9. Other | 12.1 | 4.6 | 9.5 | 11.5 | 4.6 | 8.7 | 12.6 | 11.7 | 12.2 | 10.8 | 7.5 | 9.0 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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casual labourers. With the urban population of India approaching 145 million in 1980, the absorption of even the natural increase of the urban labour force in gainful employment is likely to be a challenging task because the industrial growth in India over the past 15 years has been very slow and continues to be highly capital-intensive. Thus, although the interrelation between the rural and urban labour markets cannot be denied, the solution for the unemployment problems of the rural casual-labour force must be sought primarily in the rural sector.

Almost inevitably, therefore, the rural casual-labour population would grow at an accelerated pace; with an increase in its proportion in the total labour force, the rate of unemployment estimated through labour force surveys would also rise.

Of course, survey data on unemployment are subject to several limitations. Despite the refinements introduced in our data for measuring unemployment, they do not necessarily provide a clear guide to the supply of labour that would be available in response to any programme to expand work opportunities. The level of wage rate and the work conditions would certainly be important determinants of the actual labour supply. In Maharashtra, for example, the Employment Guarantee Scheme has reported a considerable gap (during 1978–1979) between the number of workers 'registering' for employment (2.8 million) and the number actually reporting for work on any one day (an average of 0.52 million, with a maximum of 0.77 million).[28] It is not known, however, to what degree the relatively low *average* turnout reflects a high turnover.

A question arises as to whether the casual labourers would attain a *per capita* expenditure above the poverty line if all their reported unemployment and underemployment were eliminated. A categorical answer cannot be obtained without elaborate statistical calculations, but it would probably be negative. Additional work opportunities for casual labourers would presumably have a sizeable positive impact on their incomes and living standards.

It is difficult, however, to specify the precise nature of additional work opportunities; for example, in rural areas should they take the form of a public works programme or of additional demand for labour on the farms or in non-farm enterprises? Given the limited assets of casual labourers in terms of land and skills or education (in the short run at least), the avenue of public works programmes might be more amenable to state action than the indirect route of increasing the intensity of agriculture (through increased frequency of cropping with irrigation and other modern inputs), which would in turn augment the demand for casual labour. The latter policy has been the central objective of state policy in India for the past 30 years but has not prevented an increase in the number and in the proportion of wage employees and casual labourers in the rural labour force.

The need to select projects under the public works programme with utmost care cannot be overstated; they must be technically sound and must strengthen the production potential of the rural economy. They should also be integrated into a long-range development plan for each watershed or small area. The manpower and talent required to prepare such small area plans reportedly exists in most states of India. However, truly integrated plans, which take account of the local agroclimatic conditions and of the need to restore the ecological balance and/or restructure cropping patterns in different parts of the country, can be implemented only if political decision-makers are determined to initiate concerted action and resolve the inevitable conflict of interests among the different land-owning classes of the society.[29] (A detailed discussion of these issues is beyond the scope of this paper.)

Finally, one of the major findings of our data for India, namely the association between the importance of casual labourers in the labour force and the reported incidence of unemployment seems to be relevant to the interpretation of unemployment statistics (based on a reference period of 1 week) of other countries. However, we have found no country other than India that distinguishes casual labourers from other categories of workers: employees are generally identified as one group. In Thailand, for example, where the censuses and labour force surveys report a very low incidence of unemployment (around 1% or less of the labour force), the self-employed (including employers) and unpaid family workers constitute a significant majority (78% or more) of the labour force.[30] On the other hand, in Peninsular Malaysia, Taiwan and Sri Lanka, which reported unemployment rates of about 5, 8 and 14%, the non-employees constituted 43, 44 and 34% of the labour force in 1973, 1974 and 1969–1970, respectively.[31]

Estimates of unemployment and of the labour force are known to be very sensitive to differences in definitions in surveys and stat-

Table 11. *Selected characteristics of casual wage labourers and all workers in rural Gujarat and Maharashtra*, 1972–1973

| | Casual labourers | | | | | | All workers | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rural Gujarat | | | Rural Maharashtra | | | Rural Gujarat | | | Rural Maharashtra | | |
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| A. Household occupation | | | | | | | | | | | | |
| White-collar work | 0.8 | 1.2 | 1.0 | 0.8 | 3.1 | 2.0 | 4.5 | 1.8 | 3.4 | 5.4 | 3.1 | 4.4 |
| Cultivator | 10.8 | 12.3 | 11.5 | 7.0 | 6.5 | 7.7 | 68.4 | 72.5 | 70.0 | 49.6 | 51.1 | 50.3 |
| Agricultural labour | 76.5 | 72.6 | 74.7 | 80.4 | 77.2 | 78.7 | 17.3 | 19.2 | 18.1 | 33.5 | 36.1 | 34.7 |
| Artisans and others | 11.9 | 13.9 | 12.8 | 11.8 | 13.1 | 12.5 | 9.8 | 6.5 | 8.5 | 11.5 | 9.7 | 10.7 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| B. Size of land holding possessed by the household (in acres) | | | | | | | | | | | | |
| No land | 19.2 | 19.6 | 19.4 | 17.8 | 17.6 | 17.7 | 6.8 | 6.0 | 6.5 | 9.7 | 9.1 | 9.4 |
| 0.01–0.99 | 52.5 | 50.5 | 51.6 | 34.2 | 36.8 | 35.6 | 18.3 | 15.2 | 17.1 | 19.0 | 19.5 | 19.2 |
| 1.00–2.49 | 11.7 | 10.7 | 11.3 | 13.5 | 13.2 | 13.3 | 8.4 | 8.4 | 8.4 | 10.7 | 12.5 | 11.6 |
| 2.50–4.99 | 8.6 | 12.2 | 10.3 | 12.9 | 13.1 | 13.0 | 15.3 | 18.3 | 16.5 | 13.3 | 14.4 | 13.8 |
| 5.00–7.49 | 3.5 | 2.7 | 3.2 | 10.4 | 8.7 | 9.5 | 13.0 | 13.8 | 13.3 | 12.1 | 12.6 | 12.3 |
| 7.50–9.99 | 1.8 | 1.5 | 1.7 | 3.0 | 3.1 | 3.1 | 7.2 | 7.1 | 7.1 | 6.0 | 6.1 | 6.1 |
| 10.00–19.99 | 2.1 | 2.6 | 2.3 | 6.1 | 5.5 | 5.8 | 19.0 | 19.7 | 19.3 | 15.8 | 14.9 | 15.4 |
| 20.00 and above | 0.5 | 0.2 | 0.3 | 2.2 | 1.9 | 2.1 | 12.1 | 11.5 | 11.9 | 13.4 | 10.8 | 12.2 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| C. Educational attainment | | | | | | | | | | | | |
| Illiterate | 68.7 | 92.4 | 79.7 | 61.2 | 90.5 | 76.7 | 55.8 | 89.9 | 69.4 | 49.5 | 89.0 | 67.6 |
| Up to primary | 29.0 | 7.2 | 19.0 | 32.8 | 8.9 | 20.2 | 36.4 | 9.1 | 25.5 | 39.3 | 9.8 | 25.8 |
| Middle school | 2.0 | 0.1 | 1.1 | 4.5 | 0.4 | 2.4 | 4.8 | 0.5 | 3.1 | 7.3 | 0.8 | 4.3 |
| Secondary | 0.2 | 0.2 | 0.2 | 1.5 | 0.2 | 0.8 | 2.5 | 0.5 | 1.7 | 3.7 | 0.4 | 2.2 |
| Graduate and above | – | – | – | – | – | – | 0.5 | – | 0.3 | 0.2 | – | 0.1 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| D. Age group | | | | | | | | | | | | |
| 5–9 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| 10–14 | 5.6 | 8.1 | 6.8 | 5.0 | 7.6 | 6.4 | 5.0 | 7.0 | 5.8 | 5.1 | 6.4 | 5.7 |
| 15–19 | 18.2 | 17.1 | 17.7 | 14.3 | 11.7 | 12.9 | 13.8 | 15.7 | 14.6 | 11.3 | 11.4 | 11.4 |
| 20–24 | 13.8 | 13.4 | 13.6 | 12.5 | 12.8 | 12.6 | 13.7 | 14.2 | 13.9 | 11.3 | 12.6 | 11.9 |
| 25–29 | 13.1 | 14.5 | 13.8 | 11.5 | 14.5 | 13.1 | 12.8 | 14.3 | 13.4 | 12.4 | 13.4 | 12.8 |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30–34 | 12.3 | 14.3 | 13.2 | 11.0 | 12.6 | 11.8 | 12.3 | 13.2 | 12.7 | 11.1 | 13.3 | 12.1 | |
| 35–39 | 10.9 | 10.7 | 10.8 | 13.7 | 13.2 | 13.4 | 10.6 | 10.1 | 10.4 | 12.0 | 13.0 | 12.5 | |
| 40–44 | 8.1 | 8.3 | 8.2 | 8.7 | 8.6 | 8.6 | 8.1 | 9.3 | 8.6 | 9.2 | 9.2 | 9.2 | |
| 45–49 | 6.4 | 6.3 | 6.4 | 7.8 | 7.4 | 7.6 | 7.4 | 7.1 | 7.3 | 8.2 | 7.5 | 7.9 | |
| 50–54 | 4.6 | 3.6 | 4.1 | 5.8 | 5.3 | 5.5 | 6.6 | 4.4 | 5.8 | 6.2 | 5.2 | 5.8 | |
| 55–59 | 3.5 | 1.5 | 2.6 | 4.8 | 3.1 | 3.9 | 3.8 | 2.3 | 3.2 | 4.8 | 3.8 | 4.3 | |
| 60+ | 3.4 | 2.0 | 2.8 | 5.0 | 2.9 | 3.9 | 5.5 | 1.8 | 4.1 | 7.9 | 3.6 | 6.0 | |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | |
| E. PCE deciles | | | | | | | | | | | | | |
| 1 | 20.1 | 20.4 | 20.3 | 15.3 | 14.2 | 14.7 | 10.7 | 12.5 | 11.4 | 10.1 | 10.7 | 10.4 | |
| 2 | 16.9 | 15.4 | 16.2 | 14.6 | 13.8 | 14.2 | 10.9 | 12.1 | 11.3 | 10.5 | 11.2 | 10.8 | |
| 3 | 12.3 | 13.1 | 12.7 | 11.7 | 13.5 | 12.7 | 10.0 | 10.9 | 10.4 | 9.5 | 11.0 | 10.2 | |
| 4 | 12.7 | 13.3 | 13.0 | 10.9 | 11.7 | 11.3 | 10.8 | 11.4 | 11.0 | 10.0 | 11.0 | 10.4 | |
| 5 | 12.3 | 12.2 | 12.3 | 10.7 | 11.7 | 11.2 | 10.3 | 9.7 | 10.1 | 10.7 | 11.7 | 11.1 | |
| 6 | 8.6 | 8.6 | 8.6 | 10.8 | 10.9 | 10.8 | 10.4 | 10.7 | 10.5 | 10.2 | 10.5 | 10.4 | |
| 7 | 7.1 | 7.2 | 7.1 | 9.5 | 8.8 | 9.1 | 9.6 | 9.3 | 9.5 | 10.4 | 10.1 | 10.3 | |
| 8 | 4.2 | 4.0 | 4.1 | 8.5 | 7.7 | 8.1 | 9.7 | 8.6 | 9.3 | 9.9 | 9.3 | 9.6 | |
| 9 | 4.0 | 4.4 | 4.2 | 5.2 | 5.4 | 5.3 | 8.9 | 8.5 | 8.8 | 9.5 | 8.1 | 8.9 | |
| 10 | 1.6 | 1.4 | 1.5 | 2.9 | 2.3 | 2.6 | 8.6 | 6.5 | 7.7 | 9.3 | 6.3 | 7.9 | |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | |

Table 12. *Selected characteristics of casual wage labourers and all workers in urban Gujarat and Maharashtra, 1972–1973*

| | Casual labourers | | | | | | All workers | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Urban Gujarat | | | Urban Maharashtra | | | Urban Gujarat | | | Urban Maharashtra | | |
| | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons | Males | Females | Persons |
| A. Educational attainment | | | | | | | | | | | | |
| Illiterate | 67.9 | 94.3 | 77.8 | 45.2 | 88.2 | 63.0 | 23.3 | 83.3 | 33.4 | 15.6 | 61.7 | 23.3 |
| Up to primary | 32.1 | 5.7 | 22.2 | 40.4 | 9.9 | 27.8 | 53.2 | 13.1 | 46.4 | 38.2 | 15.9 | 34.5 |
| Middle school | – | – | – | 10.9 | 1.6 | 7.1 | 9.7 | 0.8 | 8.2 | 18.5 | 6.3 | 16.4 |
| Secondary | – | – | – | 3.3 | 0.2 | 2.0 | 9.9 | 2.4 | 8.6 | 20.7 | 12.1 | 19.8 |
| Graduate and above | – | – | – | N | – | N | 4.0 | 0.4 | 3.4 | 7.0 | 4.0 | 6.5 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| B. Age group | | | | | | | | | | | | |
| 5–9 | 0.3 | – | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | – | 0.1 | – |
| 10–14 | 2.9 | 2.5 | 2.7 | 2.1 | 3.9 | 2.8 | 1.2 | 1.8 | 1.3 | 1.2 | 2.8 | 1.5 |
| 15–19 | 21.5 | 17.4 | 20.1 | 15.5 | 7.8 | 12.3 | 8.8 | 13.6 | 9.6 | 6.2 | 8.5 | 6.6 |
| 20–24 | 16.1 | 10.7 | 14.2 | 15.5 | 11.8 | 13.9 | 15.3 | 11.0 | 14.5 | 13.6 | 13.2 | 13.6 |
| 25–29 | 12.0 | 12.2 | 12.1 | 12.8 | 12.2 | 12.6 | 13.6 | 12.7 | 13.5 | 15.4 | 12.9 | 15.0 |
| 30–34 | 10.8 | 13.0 | 11.6 | 11.7 | 14.0 | 12.7 | 13.3 | 13.5 | 13.3 | 14.6 | 13.4 | 14.4 |
| 35–39 | 9.2 | 12.4 | 10.3 | 12.0 | 13.9 | 12.8 | 12.9 | 13.5 | 13.0 | 13.5 | 13.8 | 13.5 |
| 40–44 | 8.8 | 10.9 | 9.5 | 7.9 | 9.9 | 8.7 | 10.8 | 10.3 | 10.7 | 11.0 | 9.7 | 10.7 |
| 45–49 | 8.2 | 8.0 | 8.2 | 7.6 | 10.5 | 8.8 | 8.8 | 9.7 | 9.0 | 9.0 | 10.0 | 9.2 |
| 50–54 | 6.4 | 6.6 | 6.5 | 6.7 | 8.6 | 7.5 | 7.4 | 8.1 | 7.5 | 6.9 | 7.2 | 7.0 |
| 55–59 | 1.7 | 3.0 | 2.1 | 3.3 | 3.4 | 3.3 | 3.8 | 2.4 | 3.5 | 4.0 | 3.5 | 3.9 |
| 60+ | 2.2 | 3.1 | 2.5 | 4.8 | 3.9 | 4.4 | 4.0 | 3.2 | 3.9 | 4.6 | 4.8 | 4.7 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| C. PCE deciles | | | | | | | | | | | | |
| 1 | 24.9 | 28.8 | 26.2 | 0.3 | 38.1 | 33.6 | 10.4 | 19.8 | 12.0 | 10.0 | 21.2 | 12.1 |
| 2 | 19.6 | 13.8 | 17.6 | 23.6 | 25.3 | 24.3 | 10.8 | 14.4 | 11.5 | 10.8 | 17.3 | 12.0 |
| 3 | 11.9 | 15.6 | 13.2 | 12.8 | 14.9 | 13.7 | 10.9 | 12.7 | 11.2 | 10.5 | 14.6 | 11.2 |
| 4 | 10.5 | 14.0 | 11.7 | 11.8 | 9.7 | 10.9 | 11.0 | 13.0 | 11.4 | 11.0 | 10.0 | 10.8 |
| 5 | 8.1 | 9.4 | 8.6 | 5.5 | 5.5 | 5.5 | 10.3 | 8.1 | 9.9 | 10.5 | 8.5 | 10.1 |
| 6 | 6.3 | 3.4 | 5.3 | 6.1 | 3.6 | 5.1 | 10.3 | 7.8 | 9.9 | 10.4 | 7.0 | 9.8 |
| 7 | 7.9 | 5.1 | 6.9 | 4.5 | 1.2 | 3.1 | 10.5 | 6.9 | 9.9 | 9.8 | 4.9 | 8.9 |
| 8 | 4.9 | 5.7 | 5.2 | 2.5 | 1.3 | 2.0 | 9.0 | 7.0 | 8.6 | 9.9 | 5.1 | 9.0 |
| 9 | 4.7 | 3.1 | 4.2 | 2.4 | 0.5 | 1.6 | 8.5 | 5.7 | 8.0 | 8.9 | 5.4 | 8.3 |
| 10 | 1.2 | 1.2 | 1.2 | 0.5 | – | 0.3 | 8.3 | 4.6 | 7.6 | 8.2 | 5.9 | 7.8 |
| All | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

istics. In particular, the data for Malaysia, Taiwan and Sri Lanka cited earlier are *not* based on comparable conceptual frameworks.[32] Also, the availability of free rice rations (2lbs *per capita* per week) in Sri Lanka probably had an influence on the reported estimates of unemployment, since it permitted potential workers to search for an 'acceptable' work opportunity longer than would be possible otherwise. However, as the structure of employment in an economy moves towards a preponderence of employees rather than self-employed and family workers, and as education standards rise, it it likely that 'new entrants into the labour force' will search for a 'job' in terms of wage or salaried employment (rather than work on the family farm or in other family enterprises). At the very least, this hypothesis deserves further exploration. Furthermore, it would be interesting and useful to examine the extent of underemployment among those classified as employed during the references week, with a collection of detailed data on time disposition and the 'usual' activities of the respondents.

## NOTES

1. For example, a recent survey article reports that '. . . the openly unemployed are not primarily drawn from . . . low-income groups; on the contrary they are disproportionately from relatively high income families, and are well educated'. See A. Berry and R. H. Sabot, 'Labour market performance in developing countries: a survey', *World Development*, Vol. 6, Nos. 11/12 (1978), p. 1211.

2. The state samples are selected and interviewed by investigators employed by the State Governments. The sampling and other procedures followed by them are the same as those used for the 'central sample' selected and canvassed under the auspices of the National Sample Survey Organization.

3. The 'usual' labour force and employment characteristics take into consideration: (a) whether or not the respondents were 'usually' in the labour force; (b) if they were usually in the labour force, whether or not they were usually employed; and (c) if they were usually employed, which broad sector (farm or non-farm) of employment, and the status or class of worker (i.e. self-employed – including employers – a regular wage or salaried employee, a casual employee or family helper). The usual-activity categories which are used to classify the employed have been shown in several tables in the text.

4. Some persons may not actively seek work because of their impression or knowledge that work opportunities are not available. Therefore, the definition of unemployed has been broadened to include those who do not actively seek work but are available for it (at wage rates and under working conditions prevalent in the local situation).

5. Some earlier rounds of the NSS, notably those conducted during 1958–1959 and 1959–1960, had highlighted rather large seasonal variations in the level and patterns of economic activities.

6. See: NSS Organization, National Sample Survey, 27th Round, October 1972–September 1973, *Instructions to Field Staff*, Vol. 1, *Design, Concepts, Definitions and Procedures* (New Delhi: September 1972), Paras 7.0.12 and 7.7.2.

7. Questions on the duration of unemployment, if asked of those classified as 'currently unemployed', can be used to identify the chronically unemployed. In the 27th Round, only the 'usually unemployed' were asked about the duration of their unemployment.

8. There is widespread scepticism among persons associated with the NSS about information on hours worked. The respondents generally report the average number of hours worked during the reference week (usually with a preference for even digits, e.g. 2–4 hours); the investigator selects a number and multiplies it by six or seven (depending on the reported days of work).

9. Some marginal cases can arise if the number of days when a person is employed in a week equal the days when he is unemployed. In such cases, I would classify them as employed, although an opposite rule can also be used on the plausible ground that any implicit overstatement of the incidence of unemployment would only highlight a serious problem.

10. The reported incidence of usual and current unemployment overlaps to a considerable extent, particularly in urban areas of India. Table A1 in the Appendix shows the distribution of the usually unemployed according to the duration of unemployment. Evidently, about 15–20% of those reported as usually unemployed had been unemployed for up to 3 months. They might be new entrants into the labour force. It is debatable whether they should be considered 'chronically unemployed' (as is often done in India).

11. The deciles are deciles of households (not of population), arrayed in an ascending order of their monthly *per capita* consumption expenditure. Given the inverse association between average household size and the MPCE of households, the bottom deciles of households include more than 10% of the population, whereas the reverse is true of the upper deciles. Deciles of population would have different cut-off points; but the pattern(s) evident in the deciles of households would be seen in the deciles of population as well.

Our data are based on the 'state' samples. The broad comparability of these data with the 'central' samples has been discussed at length and confirmed in the author's 'Living standards, employment and

education in Western India. 1972–73,' mimeographed (1977).

12. A statistically significant inverse relationship between average MPCE in different deciles and the incidence of unemployment in terms of the current-activity criterion is evident for females in rural Gujarat, males as well as females in urban Gujarat, females in rural Maharashtra and males in urban Maharashtra.

13. These findings differ from the earlier indications of little association between poverty and unemployment or even a direct relationship between MPCE and the incidence of unemployment. Among the nation-wide surveys, the ninth Round of the NSS, from sub-samples 3 and 4 canvassed during August–November 1955 (a sample of about 8250 households), had indicated a direct (or positive) relationship between the incidence of unemployment and the MPCE, both in rural and urban areas of the country. However the number of *per capita* expenditure classes in the ninth Round was only four, and effectively three, because the top class accounted for less than 1% of the rural population and only 3% of the urban population. Further, labour force and employment status was determined in terms of the 'usual status' of the respondents, which would show only chronic unemployment, and which fails to show a clear relationship between MPCE and the incidence of unemployment even in the data for Gujarat and Maharashtra in Table 3. See: Pravin Visaria, 'Labour force, unemployment and underemployment in India: retrospect and prospect', in J. C. Sandesara (ed.), *The Indian Economy: Performance and Prospects*, (Bombay: University of Bombay, 1974). Prior to the 27th Round, only in the ninth Round were labour force characteristics tabulated according to *per capita* expenditure of the household.

14. D. T. Lakdawala, 'Growth, unemployment and poverty,' Presidential Address delivered at the All India Labour Economics Conference, Tirupati, 31 December 1977.

15. The total number of rural 'regions' in India in the 27th Round of the NSS was 65. The agricultural output data are based on a study undertaken by the Perspective Planning Division of the Planning Commission, and the Jawaharlal Nehru University. According to Lakdawala's address cited above, the agricultural output data were not available for nine of the 65 regions.

16. According to a personal communication from Sudhir Bhattacharyya, the NSS official in charge of the design of the 27th Round survy of employment and unemployment, the interviewers reported no difficulty in identifying or classifying the 'casual wage labourers' although the *Instructions to Field Staff* did not define the term 'casual labourer'. As shown later, a large majority of casual labourers in Gujarat and Maharshtra were agricultural labourers or workers in non-classifiable occupations. These groups are indeed likely to suffer from instability of employment; and their classification as 'casual' labourers is quite plausible.

17. The difference between the estimated incidence of unemployment according to the priority rule and the major-activity criterion is greater in rural areas than in urban areas, and slightly more for females than for males. Since the *denominator for both sets of estimates is the same*, the difference between the two sets for a given sex and usual-activity category indicates the *proportion of persons who are classified as unemployed because of the adoption of the major-activity criterion*. Persons classified as employed only because of the priority rule are more numerous in rural areas than in urban areas and slightly more numerous among females than among males.

18. These few would probably be the new entrants into the labour force.

19. Pravin Visaria, 'The farmers' preference for work on family farms', in *Report of the Committee of Experts on Unemployment* (New Delhi: Planning Commission, Government of India, 1970), pp. 185–194.

20. Among the analysts seeking to explain the low incidence of rural unemployment in terms of the status composition of the working force are P. C. Mahalanobis and V. K. R. V. Rao. See: P. C. Mahalanobis, 'Concept and measurment of unemployment', in V. K. R. V. Rao (ed.), *Employment and Unemployment* (Madras: Asia Publishers, 1968); and V. K. R. V. Rao, 'Employment and unemployment in the Indian economy', *Economic Development and Cultural Change* (April 1959).

The Expert Committee cited in note 19 had asserted without any statistical evidence that 'the problem of unemployment is most serious for workers who seek wage employment'. (See Para. 5.9 on page 31 of the report.) Our data confirm the validity of that hypothesis.

21. An exploration of the factors underlying the interstate differences in the proportion of casual labourers in the rural labour force is beyond the scope of this paper. The likely contributory factors include: the presssure of agricultural population on land; distribution of land; the extent of and scope for a diversification of agriculture into non-crop production such as forestry, horticulture, animal husbandry and fishing; and the relative importance of cottage and small-scale industries such as gur-making and hand-looms including silk and carpet weaving.

22. Casual labourers formed a large majority of all agricultural labourers in the rural areas of the two states. The precise percentages are given below. (A majority of the remainder were regular farm employees.)

| | Males | Females | Persons |
|---|---|---|---|
| Rural Gujarat | 81.5 | 90.3 | 85.4 |
| Rural Maharashtra | 78.4 | 98.7 | 88.4 |

23. The 'household occupation' was determined from the list of gainful occupations pursued by the members of the respondent households as that which 'fetched the maximum earnings' during the 1 year preceding the date of survey. If the earnings from two occupations were equal, the occupation of the most senior working member was recorded as the household occupation. See: National Sample Survey, 27th Round, *Instructions to Field Staff*, Vol. 1 (Delhi: 1972), pp. 9–10 of the instructions for schedule 10.0.

24. Various aspects of data on land holdings and their correlation with living standards as indicated by PCE have been discussed in my 'Size of land holding, living standards and employment in rural Western India, 1972–73', mimeographed (October 1978). Separate data on owned and leased land are not available.

25. The differences would seem even sharper if the casual labourers were compared with other workers, rather than all workers. The data on age can be rearranged to highlight the inverse association between the percentage of casual labourers and the age group of workers. The growing pressure of population on land or the inability to expand the land area under cultivation at the same rate as population or the labour force tends to raise the proportion of casual labourers (or agricultural labourers) among the younger workers.

26. Data on these characteristics have been summarized for agricultural labour households in my 'Size of land holding, living standards and employment in rural Western India, 1972–73', Annex 5, mimeographed (October 1978).

27. Government of India, Planning Commission, *Draft Five Year Plan*, 1978–83, Vol. 1 (New Delhi; 1978).

28. M. L. Dantwala, 'Rural employment: facts and issues', *Economic and Political Weekly*, Vol. 14, No. 25 (23 June 1979), pp. 1048–1057. The Scheme was introduced in 1972 as a declared commitment of the State Government to employ in unskilled manual labour any individual over 18 years of age registered with the village panchayat within 15 days of that individual presenting himself for work. Normally, work is provided within the block (an administrative unit of 100 villages, with an average population of about 100,000). Wages are paid on a piece-work basis, calculated such that 'diligent' work for 7 hours would yield a minimum wage of 3 rupees (approx. US$0.40).

29. Two excellent reports prepared during the Fifth Plan period by the Task Force on Integrated Development appointed by the Planning Commission (under the leadership of B. S. Minhas) have addressed some of these difficult issues. See: Planning Commission, Task Force on Integrated Rural Development, (a) *Report on Integrated Agricultural Development Projects in Canal Irrigated Areas* (New Delhi: September 1972); (b) *Integrated Agricultural Development in Drought Prone Areas* (New Delhi: June 1973) (mimeographed).

30. The unemployment data for Thailand are available from the population censuses of 1960, 1970 and the labour force surveys of 1969 and 1971–1976. The status distribution of the labour force has been obtained from the same censuses and the 1973 labour force survey.

31. The data cited are based on the Household Expenditure Survey conducted in Peninsular Malaysia during 1973, the Family Income and Expenditure Survey of Taiwan for 1974, and the Socio-Economic Survey of Sri Lanka conducted during November 1969–October 1970.

32. The Malaysian data are based on a reference period of 1 week. The Taiwan survey did not specify any explicit reference period and used essentially a usual-status approach. The Sri Lankan survey, on the other hand, used a mixture of a reference period of 1 month and a usual-status approach.

## APPENDIX

Table A1. *Percentage distribution of persons classified as unemployed in terms of their usual status by duration of unemployment, rural and urban India*, 1972–1973

| Duration of unemployment | Rural India | | | Urban India | | |
|---|---|---|---|---|---|---|
| | Males | Females | Persons | Males | Females | Persons |
| Up to 3 months | 15.71 | 19.78 | 16.48 | 14.63 | 16.53 | 15.07 |
| Above 3 and up to 6 months | 15.34 | 15.29 | 15.33 | 15.33 | 10.55 | 14.22 |
| Above 6 months and up to 1 year | 19.56 | 19.47 | 19.54 | 20.36 | 19.46 | 20.15 |
| More than 1 year | 49.39 | 45.46 | 48.65 | 49.68 | 53.46 | 50.56 |
| All | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Source: NSSO, Draft Report No. 255/10, pp. 110, 197. Results refer to the entire Round – i.e. four subrounds combined.

Table A2. *Selected labour force characteristics of the rural population, by states*

| | Labour force participation rates* | | | Proportion of casual labourers in labour force | | | Seeking or available for work (usual status) | | | Proportion of mandays unemployed† | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| | 72.8 | 52.7 | 62.8 | 27.2 | 48.8 | 36.2 | 0.63 | 0.27 | 0.48 | 8.1 | 16.3 | 11.2 |
| Assam | 58.6 | 9.2 | 35.8 | 9.4 | 15.8 | 10.2 | 0.75 | 1.64 | 0.87 | 1.9 | 2.4 | 1.9 |
| Bihar | 63.6 | 23.1 | 42.3 | 22.9 | 35.8 | 26.9 | 1.90 | 0.69 | 1.56 | 8.6 | 14.1 | 10.0 |
| Gujarat | 61.9 | 44.6 | 53.5 | 22.0 | 26.2 | 23.8 | 0.74 | 0.16 | 0.50 | 5.7 | 5.0 | 5.4 |
| Haryana | 59.6 | 34.9 | 47.8 | 9.5 | 8.4 | 9.1 | 1.98 | 0.20 | 1.38 | 3.9 | 1.0 | 2.9 |
| Himachal Pradesh | 61.5 | 53.0 | 57.1 | 4.8 | 0.6 | 2.8 | 0.63 | 0.15 | 0.40 | 0.8 | 0.2 | 0.5 |
| Karnataka | 68.0 | 50.5 | 59.5 | 27.0 | 37.1 | 31.2 | 0.99 | 0.24 | 0.67 | 7.2 | 11.0 | 8.6 |
| Kerala | 57.4 | 30.6 | 43.6 | 37.0 | 45.5 | 40.1 | 5.45 | 4.32 | 5.05 | 22.2 | 25.4 | 23.5 |
| Madhya Pradesh | 67.1 | 52.8 | 60.2 | 15.5 | 24.8 | 19.4 | 0.16 | – | 0.10 | 2.7 | 4.5 | 3.4 |
| Maharashtra | 64.9 | 53.6 | 59.2 | 31.5 | 44.7 | 37.6 | 0.08 | 0.11 | 0.49 | 7.7 | 11.7 | 9.4 |
| Meghalaya | 63.8 | 54.9 | 59.5 | 10.8 | 6.1 | 9.9 | – | – | – | 1.7 | 1.8 | 1.8 |
| Orissa | 61.0 | 36.1 | 51.8 | 29.8 | 37.8 | 30.6 | 1.25 | 0.38 | 0.95 | 7.6 | 15.7 | 10.2 |
| Punjab | 63.4 | 31.4 | 48.4 | 15.9 | 9.6 | 13.9 | 0.93 | 0.51 | 0.74 | 5.0 | 1.4 | 3.9 |
| Rajasthan | 68.9 | 63.2 | 66.2 | 5.4 | 4.8 | 5.2 | 0.39 | 0.19 | 0.3 | 3.6 | 2.8 | 3.2 |
| Tamil Nadu | 70.4 | 51.4 | 60.8 | 30.9 | 45.8 | 37.3 | 1.22 | 0.33 | 0.84 | 11.3 | 13.5 | 10.5 |
| Uttar Pradesh | 62.6 | 28.2 | 46.1 | 12.8 | 14.0 | 13.2 | 0.54 | 0.18 | 0.43 | 3.2 | 3.7 | 3.4 |
| West Bengal | 61.1 | 15.9 | 39.1 | 31.3 | 37.9 | 32.6 | 2.52 | 2.89 | 2.59 | 9.6 | 15.6 | 10.7 |
| Chandigarh | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Delhi | 52.5 | 48.9 | 51.0 | 12.6 | 3.9 | 9.3 | 0.88 | – | 0.55 | 4.8 | 0.6 | 3.2 |
| Goa | 58.6 | 48.4 | 53.7 | 30.3 | 44.7 | 36.6 | 1.71 | 4.11 | 2.76 | 14.7 | 29.6 | 21.0 |
| Pondicherry | 64.1 | 34.7 | 49.4 | 41.0 | 59.4 | 46.8 | 4.90 | 0.72 | 3.44 | 14.6 | 28.8 | 19.6 |
| Jammu and Kashmir | 64.4 | 27.1 | 46.2 | 2.0 | 0.8 | 1.6 | 0.40 | 0.03 | 0.39 | 9.3 | 6.1 | 8.6 |
| Manipur | 52.3 | 33.9 | 43.2 | 1.8 | 0.8 | 1.4 | 0.59 | – | 0.37 | 4.7 | 4.5 | 4.5 |
| Tripura | 59.8 | 24.2 | 42.7 | 25.1 | 30.8 | 26.7 | 0.82 | 1.20 | 0.94 | 5.5 | 7.3 | 5.9 |
| All India | 64.6 | 37.7 | 48.6 | 21.8 | 31.3 | 26.6 | 1.16 | 0.48 | 0.90 | 6.8 | 9.9 | 7.8 |

* Rates relate to population aged 5 years and over.
† This measure of unemployment is based on the percentage of persondays reported as unemployed within a week's reference period in each quarter.
Source: GOI, National Sample Survey, 27th Round, October 1972–September 1973.

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# Pakistan's Development: An Overview

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**Summary.** – This is the text of two lectures given in the summer of 1980, one at the Institute of Strategic Studies, Islamabad, and the other at the National Defense College, Rawalpindi, Pakistan. The lectures attempted to identify some non-economic determinants of Pakistan's economic performance since the standard economic explanations are not very satisfactory for analysing the country's rather erratic performance over the last three decades. The lectures reviewed Pakistan's economic history from 1947, the time of independence, to 1977, when political power moved once again from a civilian government to a military regime. The lectures underscored the importance of the nature of external economic development, the extent of government commitment to development and the level of participation in economic management as important determinants of economic performance. One of the important conclusions reached was that the governments in the Third World must pay heed to these factors in planning for the difficult times that lie ahead.

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## 1. INTRODUCTION

There is a common perception that Pakistan's economic performance in the decade of the 1970s was less than satisfactory. There is also agreement that the country's present leadership will have to act firmly and quickly to set Pakistan's economic house in order. According to the *Financial Times*,[1] writing in the summer of 1979, the donors to Pakistan 'argued throughout this year's negotiations' with the country that it had to put together a wide ranging programme for solving its 'economic ills'. Concern with Pakistan's indifferent performance also affected the confidence of the business sector in the country. *Dawn*, the influential Karachi newspaper, used the State Bank of Pakistan's report for 1978–1979 to draw the 'clear conclusion . . . that economically the country continues to be under severe pressures . . .' and that '. . . unless adequate solutions are found the continuance of the present trend can prove highly disruptive and may well stultify the growth effort'.[2] The Zia Government appears to have accepted this advice. In the past 3 years, it has tried hard to recover some of the economic ground that was lost during the Bhutto period. Even the generally uncertain political situation in the region does not seem to have changed the Government's priorities. Economic issues are continuing to receive attention. For instance, in addressing itself to the problem created by the Soviet intervention in Afghanistan, the Government of Zia ul Haq put an equal amount of emphasis on economic development. According to the *Economist*, 'Pakistan estimates it needs at least $1 billion in economic aid, plus a rescheduling of foreign debts and several billion dollars more to create a defense network along the border with Afghanistan and to replace obsolete equipment'.[3]

This renewed Government commitment to economic development has borne fruit. In 1977–1980, the GDP increased at the rate of 6.3%, compared to only 3.6% in 1970– 1977. The donor community is also now willing to help the country out of its present difficulties. In the fall of 1980, the Zia Government concluded an agreement with the IMF that will allow it to draw-down some $1.7 billion from the Fund's Extended Facility.

These recent developments raise a number of questions that this article will attempt to answer. For instance: What are the 'economic ills' from which Pakistan presently suffers? What is the nature of the 'adequate solutions' that have to be found to stop 'stultifying the growth effort'? In what way can the country

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* This is the text of two lectures given by the author in the summer of 1980, one at the Institute of Strategic Studies in Islamabad and the other at the National Defense College in Rawalpindi, Pakistan. The views expressed here are of the author and do not necessarily represent those of the World Bank. Much of the computational work for this article was done by Mr. Sagheer Mufti. I am grateful to Professors Paul Streeten and Gustav Papanek for comments on an earlier draft of the paper.

improve its economic performance 'in order to shore up its defence against external aggression and militant disruption'? These questions, often articulated, remain to be answered. They are pertinent not only for Pakistan but for a large number of countries in the Third World.

The article is divided into three sections. The first attempts to analyse Pakistan's economic performance from two perspectives: historical and country-comparative. The second provides some reasons for the conclusions drawn in the first. The third section, using the lessons learned from the analysis of the first and second sections, suggests areas of high priority that require immediate attention from the decision-makers.

## 2. ASSESSING PAKISTAN'S ECONOMIC PERFORMANCE

There are a number of ways of evaluating a country's performance. This can be done over time, by calculating the rate of growth in the gross national product, the changes in the structure of the economy, the changes in the composition of the labour force. This can also be done by noting the improvements in various kinds of indices that measure the quality of life of the people.

A comparison of Pakistan of the late 1970s with that of the late 1940s shows a fairly significant economic change over a period of 30 years. In 1979, the size of Pakistan's economy was estimated at just under $20 billion. For a population of 78 million, this meant an average income of $250.[4] Since independence from colonial rule in 1947, the country's gross national product has increased at the rate of 5.1% per annum. Since the population grew at the rate of 2.8%, personal incomes increased by only 2.3%. However, even at this rate the income of an average Pakistani in 1979 was more than twice that at the time of independence. Even though some of this growth registers a change from non-recorded substistence agriculture to market transactions, the doubling of personal incomes in three decades is without precedence in the history of the areas that now constitute Pakistan.

The economy also went through a significant structural change. In 1950, agriculture had accounted for 53% of the gross domestic product. By the end of the 1970s, its share had declined to below 30%. The manufacturing sector became much more important over time, increasing its share from 8 to 13% of the national wealth. The decline in the importance of agriculture in the country's economy was accompanied by some reduction in the proportion of the labour force employed in it, from 60% in 1950 to 52% in 1977.

The pattern of country's trade also changed significantly. In 1947, at the time of independence, Pakistan exported agricultural products in exchange for manufactures, mostly consumer goods. The bulk of its trade was with India which bought raw cotton, wheat, rice and salt in return for textiles, vegetable oil and electric power. Now Pakistan exports a number of manufactured products, some of them in large quantities. It has also begun to find markets abroad for such capital goods as sugar and cement plants. Also, the direction of trade has changed. Most of the important customers are in East Asia, North America and the European Common Market.

Pakistan is also now much more urbanized. The 1951 census of population – the first to be taken after independence – estimated the urban population at only 6 million, equivalent to 17% of the then population of 34 million. According to the census of 1972, the size of the urban population had increased three-fold to nearly 17 million or 25.4% of the total. In 1951, none of the cities of Pakistan had more than 1 million people. There are now six cities with populations of more than 1 million. Karachi, the country's largest city, has about as many people today as the entire urban population at the time of independence three decades ago.

In the period since independence, Pakistan's economy has gone through a profound change. It is four times as large and much more modern. It provides twice as much income to a population twice the size of 1947. It is much more 'open' in the sense that it trades a large proportion of its output with the outside world. While these statistics confirm that significant change has occurred, they do not say a great deal about Pakistan's relative performance. In order to do this, the question: 'Has Pakistan done well?' should be asked.

There are two ways of answering this question. The answer can be provided by comparing the status of the economy over different periods of time, say at the beginning of the decades of the 1950s, 1960s and 1970s. Or, Pakistan's performance could be compared with that of other countries. It could be compared with the developing countries in the neighbourhood; with low-income countries, the group with which Pakistan shares many economic characteristics; or with all the developing world.

Table 1. *Growth in Pakistan*, 1950–1979

| | 1949–1950 | | 1959–1960 | | 1969–1970 | | 1978–1979 |
|---|---|---|---|---|---|---|---|
| Gross national product* ($ million) | 1251 | | 1697 | | 3266 | | 4774 |
| Growth per annum* | | 3.4 | | 6.7 | | 5.7 | |
| Population (million) | 35 | | 45 | | 60 | | 78 |
| Growth per annum | | 2.5 | | 2.9 | | 3.0 | |
| Income *per capita* at current prices | | | 38 | | 73 | | 248 |
| Income *per capita* at constant prices† | 81 | | 109 | | 168 | | 178 |
| Growth per annum | | 0.9 | | 3.8 | | 2.6 | |

Source: Computed from Government of Pakistan, *Pakistan Economic Survey*, 1978–79 (Islamabad: Finance Division, 1979), Tables 2.1 and 2.2 in the Statistical Annex.

* At constant factor cost of 1959–1960.

† At 1969–1970 prices.

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Each type of comparison will undoubtedly convey a different message.

### (a) *Performance viewed from a historical perspective*

Table 1 above presents some indices depicting Pakistan's growth performance over the last 30 years. There is no inherent logic in dividing the 30-year period into decades other than the easy availability of statistics. However, Pakistan's political history also divides itself into periods roughly comparable to those of Table 1: the 1950s was the period of competitive democracy in Pakistan in which a number of political parties freely competed with one another. The 1960s saw the first of the three military governments Pakistan has had until now. General Ayub Khan came to power in 1958 and left in 1969, soon after celebrating his 'Decade of Development'. Much of the 1970s was the period of civilian dictatorship. The decade was dominated by Zulfikar Ali Bhutto who gained considerable political prominence in the elections of 1970, became President in 1971, Prime Minister in 1973 and was removed from power in 1977. While each of these three political systems left its mark on the economic scene, political factors alone do not fully explain the considerable differences in economic performance. This is a subject that will be taken up later in this article.

The first post-independence decade was a period of sluggish performance; the gross national product increased at the rate of 3.4% /year and *per capita* income by under 1%. But the 1960s brought about a spectacular change. The growth rate doubled and there was a corresponding increase in personal incomes. The 1970s saw some deceleration in the rate of increase in the national product but the rate still remained above the level of the 1950s.

Table 2. *Sectoral growth in Pakistan*, 1950–1978 *(annual growth rates, per cent)*

| | 1950s | 1960s | 1970s* |
|---|---|---|---|
| Agriculture | 2.3 | 5.2 | 2.3 |
| Industry | 8.1 | 9.1 | 2.3 |
| Others | 3.8 | 7.6 | 7.0 |

Source: As in Table 1.

* Data up to 1979 only.

These statistics point to one important conclusion. Viewed from the perspective of history and estimated in terms of the growth of the national product, Pakistan's performance during the 1970s appears unsatisfactory only when compared to that of the 1960s. The 1970s produced a better overall record compared to the 1950s; the rate of growth was not much less than the average for Pakistan's 30-year history. It was the relatively poor showing of the economy following the rapid strides made during Ayub Khan's 'Development Decade' that seems to give the impression of indifferent performance during the last decade. If this is the case, why has there been such a great deal of concern about the country's economic performance in the 1970s?

One reason for this concern may be the poor performance of agricultural and industrial sectors. The data of Table 2 above show rates of growth for these two sectors for the 1950s, 1960s and 1970s. These comparisons lead to a better understanding of Pakistan's economic performance. The contribution of agriculture and manufacturing sectors to the growth of the national product has been very uneven. In the 1950s, manufacturing became the lead sector growing at the rate of 8% per annum and

increasing its share in the economy from only 8% in 1949–1950 to over 11% 10 years later. But agriculture did poorly. Not only did its share in national output drop sharply, from 53 to 41%, but an even more important consequence was that the sluggish performance of agriculture turned Pakistan from a net exporter to a net importer of foodgrains. In 1954, for the first time in the history of the area that is now Pakistan, a large quantity of foodgrains had to be purchased from the outside.

The fortune of the agriculture sector changed dramatically in the 1960s. Compared to the 1950s, the rate of growth of agricultural output doubled. Consequently, despite a rapid increase in population and some improvement in the distribution of income[5] – two factors that together helped to raise the rate of increase in food consumption to well above the rate of population growth – Pakistan came very close to achieving food self-sufficiency by the end of the 1970s. The better performance of agriculture was not achieved at the expense of other sectors. The impressive performance of manufacturing during the 1950s was improved upon in the 1960s and Pakistan ended the second post-independence decade with the industrial sector contributing nearly 15% to the total national wealth.

This momentum was not maintained in the 1970s. For the first time in the country's history, the rates of growth of both agriculture and industrial output fell to well below that of the average for the economy. Service and construction became the lead sectors. In so far as service output is measured by value of output (i.e. services), however, there is an optical illusion in these rates of growth. In other words, the relatively high growth rate of the economy in the 1970s is largely a statistical artifact. This rather dramatic switch in sectoral performance produced immediate consequences. The sharp fall in the rate of agricultural output made the country increasingly dependent on imported food. In 1978–1979, Pakistan had to import over 2.3 million tons of wheat in order to be able to adequately feed its people. Thus, the level of food imports amounted to over one-sixth of the total domestic requirement.[6]

The most serious consequence of the decline in the output of the manufacturing sector was on the export sector. Textiles was the most severely effected industry; it no longer generated a surplus for export. The result was that the rate of increase in the country's merchandise exports declined at the rate of 3% per annum in the period 1970–1977. This means that the quantum of Pakistan's exports in 1977 was a quarter less than that in 1970. But imports continued to increase, at the rate of 4.4% per annum, in part to provide the consumers with some basic necessities which the domestic industry could no longer produce in the required quantities.[7] The growing imbalance between exports and imports left the country with a large balance-of-payments deficit, part of which had to be financed by external borrowing. This led to a sharp increase in the burden of external debt wich increased from $3 billion in 1970 to $6.8 billion in 1977. In 1977, Pakistan's external debt was equivalent to 45% of its gross national product and interest payments on debt amounted to $141 million which was equal to one-seventh of total export earnings.[8]

These statistics about the performance of the agricultural and industrial sectors, about trade and about the rapid build-up of external debt suggest an economy in deep trouble. It is not surprising, therefore, that the Russian adventure in Afghanistan underscored not only Pakistan's military weakness. It pointed also to the country's economic vulnerability. According to one assessment:

> Perhaps the most compelling reason not to put American forces in Pakistan is that they would not improve the country's security, for Pakistan's problem is as much an internal as an external one. A better way to enhance Pakistan's security would be to increase United States' economic assistance beyond the $200 million that Washington has offered. The country's economy is in poor health; it is plagued by high inflation, a large balance-of-payments deficit, and a troubled industrial sector.[9]

### (b) *Performance viewed from a comparative country perspective*

Is the health of the Pakistan economy poorer than that of other low-income countries? Has its performance been worse than that of countries at the same stage of development? Are Pakistan's economic prospects worse than that of other developing countries? The data used in the previous subsection pointed to an economy whose performance took a sudden turn for the worse during the 1970s. Is this downturn sharper than that of other developing countries?

These are important questions; to answer them, it is necessary to develop a comparative framework within which to view Pakistan's development, not only in the recent past but over the last two to three decades. Once again, as was done in the case of developing a historical perspective for evaluating performance, it would be useful to start with the data on

Table 3. *Growth of gross domestic product, 1960–1980*
*(average annual percentage rates)*

| | 1950–1975 | 1950–1960 | 1960–1970 | 1970–1980 |
|---|---|---|---|---|
| Low-income countries | | | | |
| Africa | 2.4 | 1.4 | 4.2 | 4.0 |
| Asia | 1.7 | | 3.2 | 3.8 |
| Pakistan | 4.6 | 3.4 | 6.7 | 5.5 |
| Middle-income countries | 4.0 | 2.2 | 5.5 | 5.8 |
| All developing countries | 3.4 | | 4.9 | 5.4 |
| Industrialized countries | 3.0 | 4.2 | 3.4 | 4.2 |

Source: The data for 1950–1975 and 1950–1960 are from David Morawetz, *Twenty-five Years of Economic Development* 1950 *to* 1975 (Washington, D.C.: the World Bank, 1977), p. 13, Table 1; and those for 1960–1970 and 1970–1980 are from the World Bank, *World Development Report* 1979 (Washington, D.C.: August 1979) p. 13, Table 13.

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changes in the gross domestic product. Accordingly, Table 3 presents data on GDP growth rates for Pakistan and various groups of developing countries with which the country's performance could be compared.

According to a recent study on the development experience of the Third World:

> In average per capita income, the developing countries grew more rapidly between 1950 and 1975 – 3.4 per cent a year – than either they or the developed countries had done in any comparable period in the past.[10]

Pakistan's long-term performance was even better. During 1950–1975, not only was Pakistan's growth more rapid than the average for the Third World. It also out-performed even the 'middle-income' countries. Of the 81 countries for which data are available, only 10 had growth rates between 4 and 6% per annum during the 1950–1975 period. Pakistan was one of these countries, the only one from the South Asian region.

The growth rates for each of the three decades, however, tell a different story. In terms of the increase in GDP in the 1950s, Pakistan did two and a half times as well as the low-income countries. This differential was maintained in the 1960s. The situation changed in the 1970s. The rate of growth of the poor Asian countries picked up a bit but that of Pakistan declined appreciably. Although Pakistan's national product continued to increase at a rate higher than the average of all low-income countries, the difference was no longer as large. The really worrying thing about this picture of performance was that the economy seemed to be losing the momentum gained in the two preceding decades. While the rates of growth of other countries increased considerably, that of Pakistan slowed down by a significant amount.

But growth is not an end in itself: at best it is a performance test of development. Even as a test of performance it has serious weaknesses. It used to be believed that the benefit of economic growth would spread widely and reasonably speedily. It was assumed that this trickling down would occur either through market forces or as a result of government action. However, these assumptions proved to be generally wrong. Growth in many cases did not result in spreading incomes widely; the markets did not function faultlessly. Nor did all governments take corrective action to remove impediments in the way of the benefits of growth trickling down to the less privileged segments of the society.[11]

Pakistan is a good case of growth failing to help the poor *to the extent that should have been possible*. It is important to underscore a part of the preceding sentence since it has come to be believed over time that Pakistan's remarkable growth performance during the 1960s had no impact on income distribution and poverty alleviation.[12] The evidence, however, is mixed. Once again, a comparative country framework would help to clear the perspective.

Although measuring poverty is difficult, absolute poverty can be said to have three components: low income, poor health and lack of education. It is in terms of incomes that there has been least progress in developing countries: it appears that within most nations the incomes of the poor have grown more slowly than average incomes. It has been estimated that over the period 1960–1975 the incomes of the poorest two-fifths of the population of developing countries grew at only 1.5%/year, at roughly half the average rate. This was sufficient to reduce the proportion of poor in total population from 50% to about

Table 4. *Social progress in developing countries*

| | 1960 | | 1980 | |
|---|---|---|---|---|
| | Pakistan | Low-income countries | Pakistan | Low-income countries |
| **Education** | | | | |
| (i) Adult literacy rate (% of population) | 15.0 | 22.4 | 21.0 | 32.2 |
| (ii) Enrolment rate for children (%) | | | | |
| Total | 30.0 | 37.7 | 50.0 | 63.3 |
| Males | 46.0 | – | 68.0 | – |
| Females | 13.0 | | 17.0 | |
| **Health** | | | | |
| (i) Infant mortality rate (per 1000) | 142 | 141 | 113 | 105 |
| (ii) Life expectancy (years) | 41 | 41 | 51 | 49 |
| (iii) Population receiving adequate nutrition (%) | 84.0 | 89.2 | 93.0 | 93.3 |

Source: Computed essentially from the World Bank, *World Development Report*, 1980 (Washington, D.C.: August 1980).

40% but it was not enough to prevent the absolute number of people concerned from rising by more than 40 million. Progress in respect of education and health has been much more satisfactory. There was a substantial decline in adult literacy and a significant increase in the proportion of children attending school. And – perhaps the most striking indicator of all – life expectancy in developing countries rose over the past three decades by 15 years from about 36 years in 1950 to 51 years in 1980.[13]

Pakistan's achievements in terms of social progress are somewhat less striking. The most disappointing feature of Pakistan's development experience is in the area of education. Table 4 compares Pakistan's performance with that of other low-income countries over the 1960–1980 period. In 1960, the adult literacy rate in Pakistan was seven percentage points lower than that of other poor nations. Twenty years later, the gap had widened to over 10 percentage points. Of even greater concern is the very slow progress Pakistan has made in increasing the number of children attending school. In 1980, one-half of the school-age population does not attend school compared to only a third for all other poor countries. The low proportion for Pakistan is due in part to the very high rate of girls without access to formal education. Over the last three decades, Pakistan has made very little progress towards getting girls into schools.

Life expectancy at birth is a good general indicator of health and here Pakistan has done better than other low-income countries. This can be attributed largely to the considerably better nutritional status of the Pakistani population. Pakistan has now reached the stage where it is able to supply practically 100% of the nutritional needs of its population. Despite this improvement in the general health of the population, the rate of infant mortality remains high, some 8% more than the average for poor countries. Once again the main reason for this appears to be the discrimination against female children. Hard data on female infant deaths are not available; but there is scattered evidence to suggest that the proportion of girls in Pakistan that die before they reach the age of one is much larger than that for boys.[14]

The picture of economic performance that emerges from this analysis is of a country with high potential, erratic performance and a low level of concern for the welfare of the less-privileged segments of the population. The picture having been drawn; is there a way of explaining it?

## 3. EXPLAINING PAKISTAN'S ECONOMIC PERFORMANCE

In seeking an explanation for Pakistan's economic performance over the last 30 years, it is useful to concentrate on the following four broadly defined factors:

- external economic environment;
- government commitment to economic development;
- level of participation in decision-making;
- quality of economic management.

Each of these four factors encompasses a number of elements. For instance, external

Table 5.

| | 1950s | 1960s | 1970s* |
|---|---|---|---|
| External environment | Hostile | Supportive | Neutral |
| Government commitment | Low | High | Moderate |
| Level of participation | Moderate | Moderate | Low |
| Quality of economic management | Fair | Fair | Poor |

* The judgments in this column apply to the period 1970–1977.

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environment implies the ease with which the country has access to concessional capital, the willingness of foreign entrepreneurs to invest in the economy and the terms at which it is able to exchange its surplus goods and commodities with the imports it needs. Good external environment also means that the country does not face a serious threat to its security from the outside and is able, therefore, to reduce its expenditures on defence. Government commitment means not only the willingness to formulate development plans but also to accept the discipline that they necessarily impose on the decision-makers. Commitment on the part of the Government also suggests the ability to raise resources for development even at the cost of risking political discomfort. Any judgment about the level of participation would have to take into account the 'openness' of the decision-making system. Were decisions taken to satisfy the political and economic needs of the decision-makers themselves and the groups that they represented, or were the people (however defined) also kept in view? Quality of management refers to the Government's ability to adopt and implement appropriate policies so that the opportunities opened up, say, by a supportive external environment can be turned to the country's advantage. The elements included in these definitions are taken from diffferent fields: economic, political, social, cultural and historical. An economist seeking to explain a country's performance is likely to focus more on economic elements; a political scientist would be inclined to concentrate on those that are essentially political, and so on. Taken separately, these, at best, will be partial explanations. A fuller accounting of the circumstances that bring about change in a society must include all these diverse factors.

Table 5 uses three qualitative grades to describe these listed factors. Thus, external environment can be hostile or neutral to or supportive of the efforts to develop an economy. The Government's commitment to economic development can be low, moderate or high; the level of participation in economic decision-making can again be low, moderate or high; and the quality of economic management can be poor, fair or good. If the grading of Table 5 is correct, the remarkable performance of the economy during the decade of the 1960s can be explained in terms of a generally supportive external environment, high government commitment to economic development, a moderate level of participation in decision-making and a fair quality of economic management. During the 1970s, Pakistan's external environment although not as supportive as that during the 1960s was not as hostile as that faced by other developing countries. The Government had a moderate commitment to development. Nevertheless, the performance was poor largely because of poor management of the economy and a low level of participation in decision-making during the Bhutto period.

While the schematic presentation of Table 5 should help in understanding some of the factors responsible for the wide fluctuations in Pakistan's economic pefformance during the past three decades, it is not sufficient to fully explain sharp changes from one period to another. To do that requires a somewhat more detailed account of each of the four factors.

### (a) *External environment*

Pakistan started its existence as an independent state in an extremely hostile external environment. A number of decisions and counter-decisions in Karachi and Delhi led the new nations of Pakistan and India into a prolonged trade war. The customs union established between the two countries broke up quickly and Pakistan was left very much to its own devices.[15]

The war in Korea brought some relief to Pakistan. There was a sharp and unexpected increase in international demand for raw cotton and wool, the two most important items of export for Pakistan. The prices of these commodities shot up and Pakistan's export earnings increased nearly three-fold, from $54 million in 1949–1950 to $136 million the following year. In 1950–1951, Pakistan had a trade surplus with a favourable balance of $50 million. But the relief provided by the Korean War proved

Table 6. *Exports, imports and foreign assistance (yearly averages, $ million)*

| | 1950s* | 1960s | 1970s† |
|---|---|---|---|
| Exports | 69 | 118 | 819 |
| Imports | 111 | 302 | 1343 |
| Trade balance | −42 | −184 | −524 |
| Foreign assistance | 118 | 585 | 861 |
| amount as % of GNP | 9.0 | 20.0 | 8.1 |

Source: Computed from Government of Pakistan, *Pakistan Economic Survey*, 1977–78 (Islamabad: Finance Division, 1978), Table 9, p. 117, and Table 28, p. 77, of the Statistical Annex.

* Covers the period between 1947–1948 and 1959–1960.

† Covers the period between 1970–1971 and 1976–1977.

to be short lived. The Korean boom burst in 1953–1954 and Pakistan's export earnings fell back to $65 million which in real terms was at a level lower than that of 1949–1950. For the country's external trade, 1950–1951 proved to be a freak year. Pakistan was not to have a surplus on its external trade account for another 22 years.

The 1960s brought about a marked improvement in Pakistan's external environment. While the deficit in trade persisted, the country began to receive large doses of concessional capital. During the 5 years of the First Plan (1955–1960), Pakistan received $1.1 billion in foreign assistance; during the Second Five-Year Plan (1960–1965), external assistance increased by a factor of three, to $2.9 billion. This level of assistance was maintained during the Third Plan (1965–1970).

The data of Table 6, by providing average yearly export earnings along with average foreign assistance receipts, puts the latter into a proper perspective. It also provides some quantitative evidence for the qualitative judgments made in Table 5. During the 1950s the average flow of foreign assistance was some 70% more than export earnings and two and a half times the average trade imbalance. The situation became considerably more favourable in the 1960s. During the Ayub period, the flow of concessional capital to Pakistan was six times as large as export receipts and three times as much as the imbalance in trade. It was only in the 1970s that foreign assistance fell below export earnings. In the 1960s, foreign assistance received by Pakistan was, on average, equal to 20% of its gross national product. This was twice as much as in the 1950s and in the 1970s. The 1960s, therefore, stand out as the time in Pakistan's history during which the country was very popular with the donor community. This popularity was largely due to the foreign perception about the development policies pursued by the Government. For instance:

> The sensible policies and programs adopted by Pakistan were the major reasons for the increase in resorces available. In large part, causality runs from improved policies and performance to increased aid, not vice versa.[16]

The war with India in 1965, the fall from power of Ayub Khan in 1969, the civil war in East Pakistan and the erratic economic policies pursued by the Bhutto regime drastically altered the country's image. The change in image also brought about a change in the attitude of the donor community. Although the data of Table 6 show a 47% increase in average yearly external assistance in the 1970s compared to the 1960s, in real terms, however, there was a slight decline. Also, a significant part of external aid to Pakistan in the last decade came from new donors, the Islamic countries in the Middle East.

The 1970s was a difficult decade for Pakistan for some other reasons as well. The generally supportive international economic environment of the 1960s gave way, quite suddenly, to a situation in which the Third-World countries found themselves at a great disadvantage. The price of oil quadrupled in 1973–1974. In 1973 the average price of a barrel of oil imported by the developing countries was only $3.20; the following year, the price increased nearly fourfold to $11.6 per barrel. In the 2-year period between 1973 and 1975, the cost of importing oil by the developing countries increased from $6.7 billion to $22.1 billion.

The world food crisis of 1973–1974 coincided with the sudden change in the price of oil. A number of major food growing areas in the world – the plains of Soviet Russia, the Indo-Gangetic valleys of South Asia, the island of Java in Indonesia and several islands in the Pacific – found their food output decline by substantial amounts. The price of wheat traded in international markets more than doubled; it increased from $70/ton in 1972 to $180/ton in 1974; that of rice more than tripled, increasing from $150/ton to $550/ton and the developing countries' imports of foodgrains increased from 29 million to 42 million tons, and the value of food imports went up from $4 billion to $20 billion.

These developments had a severe impact on the economies of the Third World. The current account deficit of these countries – the difference between the cost of their imports and servicing of their debt on the one hand and

their total external earnings on the other – increased from $6 billion in 1973 to $39 billion 2 years later. In 1973, the developing countries' current account deficit was equal to 1% of their combined gross national product; by 1975 this proportion had increased to 5.1%.

The Third World's response to these developments took three forms. A number of countries went to the international capital markets for obtaining the additional resources they needed for financing their imports. This option was available more readily to the middle-income countries such as Brazil, Mexico and South Korea. The markets regarded them as creditworthy and allowed them free access to their resources.

The low-income countries – those African and Asian countries with *per capita* incomes of less than $300 in 1977 prices – were placed in a much more difficult situation. The financial markets were reluctant to lend to them. A number of them, therefore, took another course, increasing their export earnings in order to pay for the increased cost of their imports. Those that failed to expand their exports had no other choice but to reduce the level of their investments. Reducing investment levels meant lowering the rate of economic growth.

Pakistan's response to this sudden change in external environment does not fit into any of these three scenarios. It did not have the creditworthiness to go to the international capital markets to raise resources for paying for the additional cost of imports. The government did little to increase exports: in fact, the policies adopted by the Government resulted in a severe depression in the export-oriented industries, and the country chose not to reduce its level of investment. Instead of the options, Pakistan chose to borrow heavily, generally short-term, from the friendly countries in the Middle East. In 1970–1971, its outstanding debt was of the order of $950 million, equal to 2% of its gross national product. By 1976–1977, its debt burden had increased to $4.6 billion or 3% of GNP. The country was also helped by a large increase in remittances from Pakistanis working overseas. The boom in the Middle East drew more than a million workers from Pakistan. By 1977–1978, this labour force was contributing $1.6 billion to the country's foreign exchange earnings.[17]

It appears, therefore, that in the 1950s Pakistan faced a generally hostile economic environment. The external climate changed suddenly and for the better in the 1960s. In the 1970s, although most of the Third-World countries faced a very difficult external situation, the impact on Pakistan was cushioned by a set of fortuitous circumstances. The sluggish performance of the economy during the 1950s and economic dynamism of the 1960s can be explained to some extent, in terms of external forces. Some other explanation has to be sought for the relatively poor performance of the 1970s.

### (b) *Government commitment*

Muhammad Ali Jinnah, the founder of Pakistan, 'brilliantly manipulated the hopes and mostly the fears of Indian Muslims to bring that state to birth'.[18] These hopes and fears were not all religious; some of them were economic. The Muslims, particularly those in the urban areas of North India, were nervous about Hindu competition in a country in which they, because of their small number, would have only a small voice. An independent Muslim state – a Pakistan – offered attractive opportunities. They fought hard to realize them. There can be little doubt that the motivation behind the Pakistan Movement was both religious and economic.[19] This notwithstanding, it is remarkable how little planning was done to translate the economic and religious aspirations of the Indian Muslim into state policy. The purpose for creating Pakistan was clear, policies for achieving that purpose remained to be formulated.

The Jinnah administration from 1947 to 1948 and the Liaqat government from 1948 to 1951 were overwhelmed with the problems brought upon by independence. India inherited a functioning administration; Pakistan had to set up everything from scratch. A government had to be created out of the civil servants transported from New Delhi to Karachi; an army had to be put together from the units that had dropped out from the British–Indian military establishment. As if this were not enough, the new government had to accommodate some 8 million refugees who migrated from India to Pakistan within a few months. Establishing a functioning government apparatus remained the principal preoccupation of these two administrations. In this situation, commitment to economic development remained low. Some effort was made to formulate a 5-year development plan but the plan document was released to the public only after Ayub Khan came to power.

Ayub Khan justified his *coup d'état* in terms of the country's economic problems that had

resulted from the lack of his predecessors' commitment to economic goals. 'Economic stability and their development became central planks in the new government's programme.'[20]

Ayub Khan's deep commitment to improving Pakistan's economic performance had one important consequence: it provided the people of Pakistan with a more tangible objective to work for. 'Saving Islam for the Muslims of British India' was the stated goal of the Pakistan Movement. However, once Pakistan had been created, it became exceedinlgy difficult to define the country's purpose in religious terms. It was only in March 1949, a year and a half after the founding of the state, that the constituent assembly was able to agree on the most important clause in its 'objective resolution', which was to lay down the Islamic *raison d'ëtre* of Pakistan. But progress beyond this point proved difficult:

> . . . so that it was only in 1956 that Pakistan's first constitution was adopted, where the Islamic mountain in labour produced a barely Islamic mouse: the Islamic clause of the objective resolution was repeated with the addition of just two Islamic provisions – that the Head of State must be a Muslim and that Pakistan was 'an Islamic republic'.[21]

When Ayub Khan came to power, he found the country engaged in what was essentially a sterile debate. Emphasis on economic development as the *raison d'ëtre* of his revolution seemed to change the nation's psyche. The first chapter of the Second Five-Year Plan, put before the people a different set of objectives. 'In marked contrast to the First Plan, Pakistan's Second Five-Year Plan was launched in propitious conditions . . . the Second Plan has become a rallying point for national effort which the First Plan, unfortunately, never was'.[22]

The Government's commitment to economic development also provided the powerful bureaucratic structure a good reason for changing its own priorities. The Indian Civil Service was the 'steel frame' that had supported the British *raj* in India. Maintenance of law and order was its primary function. The Civil Service of Pakistan – the successor of the ICS – for the first post-independence decade had interpreted its mandate in similar terms. As the Ayub revolution had done for the nation at large, it also redefined the objectives for the civil bureaucracy. The performance of the civil servants was to be gauged no longer in terms of their ability to maintain political and social tranquility and ensure law and order but in terms of their willingness to work for rapid national development. Armed with this new purpose, the Civil Service of Pakistan changed its style and quickly transformed itself into a development service par excellence.

Given the goals the regime of Ayub Khan had set for itself, it was right for the people to pronounce their judgement on its performance in mostly economic terms. The verdict came in 1969. In the perception of a large number of people, Ayub Khan had failed in two ways. The economy had grown rapidly but so had the disparity between East and West Pakistan. Also, it was widely believed that the Ayub model had not succeeded in delivering the benefits of economic growth to the less privileged segments of the society. Whether these perceptions were right or wrong will be debated for a long time; what is important, however, is the fact that the politically powerful and articulate groups of people believed in them. One result of the agitation that dislodged Ayub Khan from office was the assessment by Bhutto that economics alone would not build and sustain political constituencies. A regime had to undertake active political engineering; accordingly, Bhutto's commitment to economic development was somewhat weaker than that of his predecessor.

What further weakened the Bhutto administration's commitment to economic development was the lack of consensus amongst the leaders of the Pakistan People's Party on how best to manage the economy. For a time, the leftists in the PPP administration had a strong voice in the Government: the result was a series of nationalizations that quickly expanded the role of the public sector. For a time, also, urban intellectuals dominated the PPP left; the result was a shift in emphasis from agriculture – a sector favoured during the Ayub period – to heavy industry. When the left departed from the administration and Bhutto, freed from international obligations, began to take an active interest in economic decision-making, it became clear that he did not have a well-formulated plan of action. Important decisions were taken in an *ad hoc* manner, usually without the advice of the economic establishment. This kind of 'decision-making without constraints',[23] burdened the economy and slowed down its more productive sectors.

### (c) *Level of participation*

Economic decision-makers during Pakistan's 30-year history have displayed a remarkable lack of consistency in their approach towards

various sectors. During the 1950s, large-scale manufacturing was the clear favourite with emphasis on import substitution, particularly for the more important items of everyday consumption. Development of the textile industry in the hands of private entrepreneurs received a great deal of government attention. Consequently, in textiles and in many other consumer goods, Pakistan was able to achieve self-sufficiency by the time Ayub Khan replaced the civil politicians in 1958.

During Ayub's Decade of Development, agriculture became the lead sector of the economy. Its output increased at a rate unprecedented in Pakistan's history; by the end of the Ayub era, the country's output of foodgrain had more than doubled in just over 11 years.

The Bhutto administration ignored both the consumer goods industry and agriculture. Instead, it turned its attention to the producer goods industry. Karachi Steel Mill became the single most important development project claiming, in real terms, more resources during the 1970s, than did the entire public sector in the 1970s. Partly for want of government support and partly because of the fear of nationalization, private entrepreneurs, from both agricultural and industrial sectors, moved a considerable amount of their resources to commerce and construction. In the 1970s, the rate of growth in value added in these two sectors was twice as high as the average for private industry and agriculture.

There are a number of plausible explanations for these shifts in sectoral priorities. Perhaps the most important of these was the quick changes in the immediate political constituency to which the decision-maker appealed or to whose pressure the decision-maker was subject. In the 1950s, urban consumers and merchant-industrialists had more influence on economic decision-making than any other economic group. Hence the emphasis was on the consumer goods industry. Landlords, deliberately ignored during most of the 1950s, regained a great deal of their political power in the 1960s and regained also the Government's attention toward the rural sector. Understandably nervous about Bhutto's economic intentions – as stated in the PPP's manifesto for the election of 1970 – large landlords and large industrialists kept their support from him and, accordingly, incurred his displeasure once he was in office. Bhutto's nationalization of a number of privately owned industrial firms and establishment of a low ceiling on landholdings were meant to punish the industrialists and the landlords for what he considered to be their political misdeeds. It seems, therefore, that interest and social group politics provide a good explanation for the sudden shifts in policies that have marked much of Pakistan's economic history. These sudden swings would not have occurred had Pakistan developed institutions to mediate between the political interests of the ruler and/or the ruling élite and the economic and social interests of the groups that the decision-makers sought to cultivate, reward or punish. It was the absence of institutions of participation that appears to have contributed to erratic economic decision-making.[24]

It is for this reason that the matrix of Table 5 does not show better than a moderate level of participation in decision-making in any of the three periods. The level was moderate in both the 1950s and 1960s when the political leaders found some means to have the interests of the various social groups articulated. This role of mediation was served by the Civil Service of Pakistan in the 1950s and the Civil Service of Pakistan, the military and the system of Basic Democracies in the 1960s. But none of these conduits – with the possible exception of the Basic Democracies – can be regarded as institutions in the strict sense of the word. And none of them – not even the Basic Democracy system of local government – was assigned this role of an intermediary long enough to bring a certain amount of stability in group interaction. Therefore, the decision-makers could adopt, cultivate or discard group support without great difficulty. The only way out for the groups was to use street politics to vent their feelings as well as their interests.

### (d) *Quality of economic management*

The benefits offered by a supportive external environment, a high level of government commitment and a high level of participation in economic decision-making can be frittered away by poor economic management. Indifferent economic management compounds the difficulties presented by such other factors as hostile external environment and a low level of government commitment to economic management.

In terms of the quality of management, none of the three periods identified in Table 5 scores very high. The Government's handling of the admittedly rather severe problems that Pakistan inherited at birth was at best fair. Some shrewd decisions were taken – such as the exchange rate policy adopted in 1949 by which the

country took advantage of the inelastic world demand for some of the country's important exports – but little effort was made to adjust the policies with change in circumstances, such as the failure to devalue the currency once the boom produced by the Korean War was over. The Government's agriculture policies provide another example of a less than imaginative approach towards economic management. The Government's major political constituencies wanted the price of agricultural products to remain depressed: the urban consumers demanded cheap food and the industrialists desired low priced raw materials. For a time this policy made sense. Uncontrolled food prices would have no doubt caused a great deal of hardship to the 8 million refugees who arrived in Pakistan in 1947–1948. Government control on cotton and raw jute provided the incentives to the private sector to invest in an economy whose future was uncertain. But the circumstances changed in the mid-1950s; the refugees had been absorbed successfully and the cotton and jute textile industries had begun to produce large profits. On the other hand, agriculture output was stagnant: the failure of food production to match population growth was now producing severe strains on the country's balance of payments. But the Government failed to change its policies.

The quality of management during the Ayub period did not improve a great deal. Although contemporary opinion about Ayub Khan's conduct of the economy was very favourable – according to one opinion expressed in 1967, 'the economic performance of Pakistan in the last few years has been primarily the result of good economic management'[25] – it is now clear that some of the problems the economy was to face later can be attributed to the decisions taken in the 1960s. The most vivid illustration of this is the system of economic controls established by the Ayub regime.

The military government's first impulse on taking over the administration was to institute draconian controls on prices, particularly in the industrial sector. But the disruption caused by these measures taught a lesson that the new leaders were quick to learn. One by one the rather elaborate system of economic controls established by successive administrations in the 1950s were abolished to be replaced by a structure in which market forces *apparently* gained ascendency, apparently because the Government continued to direct investment into the channels of its choice. Some of this direction was subtle: for instance, the Government would not sanction foreign exchange to be used for new textile mills with more than 12,500 spindles each. Encouraging new entrepreneurs into the industrial sector was the declared objective for limiting the size of new textile plants to one-eighth that dictated by the demands of economy of scale. The Government succeeded in its objective but it also managed to create a highly inefficient textile sector, the price for which was to be paid a decade later.

The quality of management deteriorated sharply during the Bhutto period. There were many reasons for this but the following three seem to be the more important ones. First, the nationalization of several large industrial firms, banks and insurance companies placed a tremendous burden on the Government's administrative resources. It might have been possible to carry this burden had not the Government simultaneously restructured the administrative system. The two steps taken together created a considerable amount of confusion. Second, the administration throughout its 6 years in office was unable to adopt a clearly defined attitude towards the private sector. The private sector remained uncertain about the role they were to perform; an uncertainty that resulted in a considerable decline in investment activity. Third, the administration – in particular Prime Minister Bhutto – put very little emphasis on the economic analysis of government policies and public-sector projects. New policies were introduced and new projects were sanctioned, mostly without a careful review of their economic impact.

In these three periods, Pakistan's performance would have been much better had the various administrations paid the required amount of attention to the management of the economy.

## 4. CHOICES FOR THE FUTURE

The 1980s are not likely to be an easy period for Pakistan as for a number of other poor developing countries. The external environment would probably be even less supportive than it was in the 1970s. The real price of oil is expected to increase by at least 3% per annum over the next decade, the slow-down in the economies of the industrial countries will limit trade opportunities for the Third World, and there are uncertain prospects for concessional assistance by the rich to the poor countries. Largely because of these adverse factors, it has been estimated that the *per capita* incomes in the poor countries may not increase by more than 2% per annum in the 1980s. In fact, this scenario has been described as a hopeful one

Table 7. *Future growth prospects and impact on poverty*, 1980–1990

| Poverty belts | Number of poor, 1980 | 'Low' case | | 'High' case | |
|---|---|---|---|---|---|
| | | Growth rate GNP *per capita* | Number of poor | Growth rate GNP *per capita* | Number of poor |
| Africa | 110 | −0.1 | 140 | 0.6 | 120 |
| Asia | 530 | 1.3 | 515 | 2.2 | 490 |
| Total | 640 | 1.1 | 655 | 2.0 | 610 |

Source: Estimates based on *World Development Report*, 1980 projections.

since it presumes a good quality of economic management on the part of the poor countries. It is expected that the countries will be able to raise more domestic resources to compensate for the slow-down in trade, the high price of energy and low levels of concessional assistance from the industrial countries. If the low-income countries are unable to adjust to this adverse external economic situation, the rate of growth in their *per capita* income might register a further decline and not be more than 1.1% during the 1980s. One consequence of this possible slow-down in economic activity in the poor countries would be to increase the number of poor living in absolute poverty. (See Table 7.)

Pakistan must not only contend with an indifferent world economic situation in the 1980s, it also faces a number of other problems that are peculiarly its own. Three of these deserve some elucidation. First, at no time during the country's 30-year history – not even in the difficult period immediately following independence – was the economic institutional base as weak as it is today. Second, the private sector remains uncertain about the country's economic future. Institutional weakness along with unsettled political conditions contribute to this uncertainty. One result of this is the extremely low level of domestic saving in the country. Third, Pakistan's large and rapidly increasing population has a much lower level of social development than many other countries in the same income range.

But there are a number of favourable factors that could possibly offset these disadvantages. The following three need to be underscored. First, Pakistan has a rich – and still largely untapped – agricultural potential. It has one of the largest irrigation networks in the world, good quality of soil and a climate that makes it possible to grow a variety of high value crops. Second, Pakistan's geographical position in West Asia and the Islamic faith that it shares with a number of other countries in the region have made possible a large-scale migration of people with relatively low levels of skills. It would not have been possible to provide adequate job opportunities to these people within the country. Migration to the West Asian countries has also resulted in a large flow of workers' remittances into the country. Without this flow of capital – in 1980 it is estimated at $1.6 billion, sufficient to pay for almost 40% of the total imports – Pakistan would have found it exceedingly difficult to meet is external payments commitments. The West Asian countries also offer lucrative markets that Pakistan could easily exploit for the export of agricultural products and manufactured goods. It can also be expected that Pakistan will continue to receive fairly generous assistance from the Arab oil-exporting countries. Third, Pakistan now has the industrial base to launch a major initiative in the export field. Rising wages in the countries of East Asia provide Pakistan with the opportunity to use its comparative advantage in order to obtain a larger share for itself in international trade in textiles, electronics, communication and transport equipment.

Is Pakistan likely to follow the scenarios considered likely for the poor countries or is it going to set for itself and realize targets much more ambitious than those indicated in Table 7? The answer to this question depends upon the ability of the decision-makers to turn to the country's advantage the positive factors enumerated earlier. This will need the decision-makers's commitment to development, creation of institutions to ensure broad participation of various groups in the process of decision-making, and careful management of the economy.[26]

NOTES

1. *Financial Times* (London), 23 August 1979.

2. *Dawn* (Karachi), 15 December 1979.

3. *The Economist* (London), 'Pakistan: who'll help?' 15 March 1980.

4. Government of Pakistan, *Pakistan Economic Survey:* 1978–79 (Islamabad: Finance Division, 1979), Table 22, p. 13, of the Statistical Annex.

5. It is generally believed that income distribution worsened during the Ayub period. However, some recent analysis of household expenditure data suggests that income distribution improved somewhat during the 1960s. See Norman Hicks and Steve Guisinger, 'Long-term trends in income distribution in Pakistan', *World Development*, Vol. 6 (1978), pp. 1271–1280.

6. Amir Muhammad, 'National wheat perspective', the Keynote Address at the National Seminar on Wheat Research and Production, Islamabad, 6–9 August 1979.

7. The trade data for 1970–1977 are from the World Bank, *World Development Report*, 1979 (Washington, D.C.: August 1979), Table 10, p. 144.

8. The data on external debt are also from *World Development Report*, *op. cit.*, pp. 150–154.

9. Christopher van Holten, 'Leaning on Pakistan', *Foreign Policy* (Spring 1980), p. 45.

10. David Morawetz, *Twenty-five Years of Economic Development*, 1950 *to* 1975 (Washington, D.C.: the World Bank, 1977), p. 67.

11. This section draws on the recent works of Paul Streeten. See, for instance, Paul Streeten, in *Toward a New Strategy for Development*, A Rothko Chapel Colloqium (New York: Pergamon Press, 1979), pp. 21–52.

12. Much of the perception about the failure of Pakistan's economy to deliver benefits to the poor is owed to the statements and writings of Mahbub ul Haq. See his, *The Poverty Curtain: Choices for the Third World* (New York: Columbia Unversity Press, 1976), Chap. 1.

13. The data on social development in developing countries are from the World Bank, *World Development Report*, 1980 (Washington, D.C.: August 1980), Chap. 4.

14. Shahid Javed Burki, 'Poverty in Pakistan', chapter to be published in T. N. Srinivasan and P. Bradhan (eds.), *Poverty in South Asia*, forthcoming.

15. This thesis is developed in full in Shahid Javed Burki, *Pakistan Under Bhutto*, 1971–77 (London: Macmillan, 1980), pp. 12–48.

16. Gustav F. Papanek, *Pakistan's Development: Social Goals and Private Incentives* (Cambridge, Mass.: Harvard University Press, 1967), p. 63.

17. Shahid Javed Burki, 'What migration to the Middle East may mean for Pakistan', *Journal of South Asian and Middle Eastern Studies*, Vol. 3, No. 3 (Spring 1980), pp. 47–66.

18. G. H. Jansen, *Militant Islam* (New York: Harper & Row, 1979), p. 135.

19. This thesis is developed more fully in Part I of my recent book, Shahid Javed Burki, *Pakistan Under Bhutto*, 1971–77, *op. cit.*, pp. 11–78.

20. Gustav F. Papanek, *op. cit.*, pp. 6, 86. See also Mohammed Ayub Khan, *Friends Not Masters. A Political Autobiography* (New York: Oxford University Press, 1967), pp. 56, 81.

21. G. H. Jansen, *op. cit.*, pp. 136–137.

22. Mahbub ul Haq, *The Strategy of Economic Planning: A Case Study of Pakistan* (Karachi: Oxford University Press, 1963), p. 173.

23. See Shahid Javed Burki, *Pakistan Under Bhutto*, 1971–77, *op. cit.*

24. Mancur Olson, on the other hand, has argued that absence of strong special interest groups is a precondition for achieving high growth rates, because resistance to change is reduced. See Mancur Olson, *The Logic of Collective Action* (Cambridge, Mass.: 1965).

25. Gustav F. Papanek, *op. cit.*, p. 270.

26. The outline of an economic strategy that Pakistan could pursue with considerable profit during the 1980s is spelled out in some detail in my forthcoming book, Pakistan: Critical Choices for the 1980s.

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# More on the Emigration of the Peasantry

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**Summary.** – This paper sets out some circumstances in which emigration of some fraction of the population may be harmful to those who are left behind. In elaborating on the recent work of Keith Griffin, we argue that when emigration takes place, non-emigrant income will rise or fall depending upon the proportion of the original endowment of capital emigrants take with them. When pure labour emigrates, in a one-sector model, non-emigrant income must decline. In a two-sector Heckscher–Ohlin framework, the income of non-emigrants may also decline if one of the goods is non-traded.

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In a recent article [*World Development*, Vol. 4, No. 5 (1976), pp. 353–361],* Keith Griffin argues that restrictive immigration policies of rich countries are 'contrary to the interests of poor people in underdeveloped countries and it is misleading to suggest the reverse, or to imply that there might be a case for underdeveloped countries to erect further obstacles' (p. 353). The purpose of this note is not so much to quarrel with Griffin, since I also favour freer mobility of labour, but to point out that there are understandable reasons why non-emigrants may favour restrictions on emigration (even) of pure labour. In particular I want to elaborate on the notion of real income (or welfare).

It is my contention that in 'On the emigration of the peasantry', Griffin overlooks some of the subtleties inherent in emigration-induced changes of real income which help to explain why non-emigrants may not favour emigration of pure labour, why they may favour emigration of the relatively capital rich, and even favour the emigration of those whose capital is partly in the form of human capital. The important distinction that I wish to draw is the difference between the change in income of the emigrant and the change in income accruing to non-emigrants when emigration occurs. Griffin's contention that there is an unambiguous gain to the country whence emigration takes place leaves a serious puzzle. How can we explain emigration taxes and the reluctance of many nations to allow their citizens to emigrate?

Throughout this analysis I shall follow Griffin and ignore the case in which the unemployed leave for other lands as an obvious plus for emigration. I should note in passing, however, that the presumption there is that the unemployed are meaningfully exported. If there is a natural rate of unemployment, then exporting some *workers* will have minimal effects on the unemployment rate and the analysis may proceed as if there were full employment. Indeed the full-employment scenario played out so frequently in the literature really should be interpreted to mean that aggregate expenditure policies of the central government and relative price policies (such as unemployment, welfare or local aid programmes) are held constant.

A second caveat is that, unlike Griffin, I will not deal with a two-sector economy – agriculture and industry – but with a one-sector economy producing a single homogeneous output. The defence for this change is that the problem of emigration is considerably simplified and the conclusions are unaltered in sign (although possibly in degree) in more complicated cases when one of the sectors in the economy produces goods which are not traded internationally (I elaborate a two-sector model in the Appendix.) These sorts of markets arise from the ubiquitous presence of tariff and non-tariff barriers or transportation costs and are very much in the spirit of Griffin's argument.

A third caveat is merely to remind the reader that this is one theoretical argument being marshalled to modify another. The proof of all these puddings is ultimately in the empirical consequences of the theory. It may well be that in some cases the facts are such as to make many of the issues raised here relatively unimportant. In such a case we can only hope that

* I am indebted to Professor D. J. DeVoretz for calling the article to my attention. He, of course, bears no responsibility for the ensuing discussion.

the theories discussed will aid empirical work by allowing it to focus on the kernel and dispose of the chaff.

## 1. PRODUCTION AND WELFARE

Griffin argues that in a fully-employed economy there is an unambiguous gain in real income when emigration occurs since the emigrant remits a portion of his (pure) labour income from abroad. There is: (i) a rise in the income of the emigrant who is now abroad as he is able to earn more than he could have earned at home, and (ii) an increase in his family's income which is augmented by the remittance from abroad.[1] Thus, so long as the wage abroad is greater than the wage at home, there is a gain. Griffin then draws a red herring across our path by pointing out that as long as the emigrant's consumption at home was greater than his marginal product at home, it would pay (his family) to assist him in leaving. At this level of abstraction, if the wage were better abroad than at home, it always pays pure labour to emigrate.[2]

Notice that Griffin's measure of income includes the emigrant. Is this an appropriate criterion? An alternative is to compare the income of non-emigrants before emigration with non-emigrant income after emigration. In some sense this is the relevant group since non-emigrants will be affected by the individual's (presumably voluntary) decision to seek opportunities abroad.

In this case the exit of one unit of (pure) labour leads to a *decline* in non-emigrant income as the departing worker leaves a smaller labour force to work the same amount of capital as was available before. Although the marginal product of labour has been increased by his departure, the marginal product of capital declines. So long as total income is equal to the sum of the products of the factor and their marginal products, the losses will outweigh the gains.[3] Heuristically, since non-emigrants own a greater proportion of the original capital (all) than they did of the original labour force (all but the one emigrant), the decline in the marginal product of capital outweighs the rise in the wage as the capital–labour ratio rises.

Thus the change in the base used for evaluating the change in income is critical. Including the emigrating worker (and his family) in the measure of income leads to a measured rise in income while a measure which looks only at the income of those who are left behind yields a decline in income. Although neither measure is *the* right measure of income, the latter measure may explain why some countries are reluctant to allow their citizens to emigrate, while the former is more appropriate in evaluating world resource allocation and production.

Adding 'human capital' and emigrants ownership of domestic physical capital complicates the evaluation of non-emigrant income somewhat. If the emigrants are physical-capital rich and leave that capital behind, then non-emigrant income will rise. If emigrants are human-capital rich and perforce take that capital with them, non-emigrant income declines. With several factors of production, the exact conclusions with respect to changes in non-emigrant income resulting from emigration become ambiguous in general and depend upon the nature of production technology and the proportions of each factor owned by the emigrants.[4]

Now, what of remittances? Under the definition of income, which includes only non-emigrants, there is no reason to suppose that the remittances benefit them at all. A tax on remittances would be one way for non-emigrants to change this. If we include the family of the emigrant in our measure of the post-emigration income, clearly they may gain if the remittance if large enough to offset the loss of the wage earner's income when he was at home. Further, the remittance may be large enough to generate a gain to society as defined in Griffin's fashion.

## 2. DISTRIBUTION, THE BALANCE OF TRADE AND INFLATION

Now let us spend a paragraph on each of the other topics raised by Griffin: the distribution of income, the balance of trade (and payments), and inflation. The emigration of pure labour raises the wage and lowers the return to domestic capital. To the extent that one prefers a high wage and lower return to capital one need say no more. Whether this is good or bad is obviously a matter of taste, not positive analysis.

As to the balance of trade, if non-emigrant income declines, then the trade effects (or payment or exchange rate effects) will be consistent with any other phenomenon which reduces income. Emigration is not special in any way. Remittances, however, raise another problem since they are counted in the income accounts as a surplus generating item. Whether they increase aggregate expenditure is another issue since the government has several massive ways of offsetting their effects. Recall the basic identity under fixed exchange rates: $B = Y - E$.

The balance-of-trade (payments) surplus is equal to income less expenditure. If income falls, expenditure may or may not decline in total, but the effect of remittances is likely to be dwarfed by the continuing changes in other government policies affecting both income and expenditures.

In terms of inflation, again the issue hinges on the income effects of the emigration. For a given outstanding stock of money, if income declines we would expect a rise in the price level.[5] But I want to stress that this is a once and for all increase in the price level and not a recurring event. Thus it is hardly in the same class of actions that produce almost all modern inflations. The latter are dependent upon recurring increments to the domestic money base of 20, 30, 40 or more per cent *per year*. If remittances are brought in each year, then to the extent that they are allowed to increase the domestic money supply, they will generate price increases. But it is almost inconceivable that in and of themselves they have a major effect upon the path of inflation. Sterilization of these inflows is a simple policy which could offset the effects of any given inflow.

Although our analysis is premised on entirely different hypotheses about the ways in which the economy operates, I fully concur with Griffin's conclusion that inflation and balance-of-trade effects of emigration are likely to be small.

## 3. CONCLUSIONS

Unlike Griffin, I want to emphasize that many aspects of the economic analysis of emigration do not depend upon emigrants having an economic motive for departure. The consequences for non-emigrant income depends upon the labour, physical and human capital that the emigrants take with them. Until we know the composition of these components there is little reason to believe that societal income is affected in a positive way. The earlier analysis has stressed the definition of income. It is a tricky term. Griffin's conclusion that emigration is unambiguously advantageous for the society from which the emigrant departs hinges on including the emigrant as forever a member of that society. If we consider only the income of non-emigrants before and after emigration, however, the conclusions are richer. There may be gains or losses. The latter possibility provides a potential explanation for observed restrictions on emigration and immigration.

## NOTES

1. With Griffin we will assume that the emigrant abroad does not consume all he earns and does in fact remit income.

2. We are ignoring arguments that have to do with uncertainty and waiting time and the like which could easily be incorporated into the above and are of peripheral interest in this context.

3. The technical terminology is that we assume that the production process of the (competitive) economy displays linear homogeniety. The non-emigrant income is equal to income from non-emigrant labour, $wL_n$, and income from the capital owned by non-emigrants, $rK_n$. If $Y_n$ is non-emigrant income, and $K$ and $L$ are the total amounts of capital and labour in the economy, we can express non-emigrant income as a function of the labour of non-emigrants, the capital of non-emigrants, and the overall capital–labour ratio in the economy, $k = (K/L)$:

$$Y_n = L_n[f(k) - kf'(k)] + K_n f'(k),$$

where $f$ is the intensive form of the production function and $f'(k)$ is its first derivative which is equal to the marginal product of capital or the return, $r$, on capital. The expression in brackets is equal to the wage rate, $w$.

Changes in non-emigrant income with respect to changes in the capital–labour ratio induced, for example, by emigration are found by differentiating the expression for non-emigrant income with respect to $k$:

$$dY_n/dk = L_n[(K_n/L_n) - k]f''(k),$$

where $f''(k)$ is the second derivative of the production function and is negative in sign since the marginal product of labour is negatively sloped.

In the case of pure labour emigration, the capital–labour ratio rises, and since $K_n = K$ as all capital is owned by non-emigrants, $dY_n$, non-emigrant income, unambiguously declines. These points are fully developed in Berry and Soligo (1969), and Easton and Heaney (1979).

4. See Easton and Heaney (1979) for a more complete technical discussion.

5. The inflation issue is seriously clouded by the international environment and the nature of the exchange rate regime being followed: flexible or fixed. I shall treat the matter almost as if the economy were closed rather than open. This is clearly inappropriate for countries which are heavily engaged in trade or have a large part of their capital stock owned abroad. In such cases the remarks in the text should be taken to refer to impact effects. The long-run consequences of income, expenditure and monetary changes are pursued

in Johnson (1961) and recent work on the monetary approach to the balance of payments.

6. $$(\hat{L}-\hat{K})/(|\lambda|)+\sigma_S(\hat{P}_1-\hat{P}_2)=\hat{X}_1-\hat{X}_2, \quad (1)$$

where, as before, the '^' is the proportional rate of change. $|\lambda|=\lambda_{L_1}-\lambda_{K_1}>0$ when $X_1$ is labour-intensive, and $\lambda_{ij}$ is the share factor $i$ used in industry $j$. $\sigma_S$ is the elasticity of the transformation schedule. See Jones (1965) for a complete discussion of the properties of this model.

If demand is characterized as:

$$\frac{X_1}{X_2}=\left(\frac{P_1}{P_2}\right)^{-\sigma_D}, \quad (2)$$

where $-\sigma_D$ is the demand elasticity, then we can solve equations (1) and (2) for relative price changes $(\hat{P}_1-\hat{P}_2)$. Although this form suppresses income effects, they add little to our understanding since any result can be obtained by assuming various pathologies!

Since $\hat{L}<0$ and, if pure labour emigrates $\hat{K}=0$, prices change as:

$$\hat{P}_1-\hat{P}_2=(-\hat{L})/|\lambda|(\sigma_D+\sigma_S)>0.$$

7. In a country with non-traded goods we may treat one of the commodities as a composite commodity and call it traded goods. This commodity includes both exportables and importables. The second commodity is then the non-traded commodity. The relative price $(P_1/P_2)$ is determined by domestic demand conditions since (for a small country) there is an exogenous price for traded goods and the home goods market must clear. Thus the relative price of the non-traded good is set domestically as described in note 6.

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## APPENDIX

## SMALL CHANGES IN THE LABOUR SUPPLY IN A TWO-SECTOR MODEL

Unlike the model in the text which makes use of large changes in the supply of labour, the usual two-sector model allows non-emigrant income either to rise or to fall in response to a small change in labour supply. Let $X_1$ and $X_2$ be produced in a competitive constant returns-to-scale environment, and let $X_1$ be labour-intensive. Non-emigrant income, $Y_n$, is:

$$Y_n=wL_n+rK_n, \quad (A1)$$

where $w$ is the wage, $r$ the rental rate, $L_n$ the number of non-emigrants and $K_n$ is the capital *owned* by non-emigrants. If the hat '^' represents the proportional rate of change $[\hat{x}=(dx/x)]$, then:

$$\hat{Y}_n=\theta_{Ln}\hat{w}+\theta_{Kn}\hat{r}, \quad (A2)$$

where $\theta_{in}$ is the share of factor $i$ in non-emigrant income. If pure labour emigrates, then at constant relative prices the transformation curve shrinks along a Rybczynski line. Non-emigrant income remains unchanged. A more interesting case arises when relative prices change. If substitution effects dominate in demand, then the decline in the labour force which generates a greater than proportional decline in the production of the labour-intensive commodity, $X_1$, at constant prices, leads to a rise in the relative price of commodity $X_1$.[8]

We know that:

$$\hat{w}=(\theta_{K_2}\hat{P}_1-\theta_{K_1}\hat{P}_2)/(|\theta|), \quad (A3)$$

$$\hat{r}=(\theta_{L_1}\hat{P}_2-\theta_{L_2}\hat{P}_1)/(|\theta|), \quad (A4)$$

where $|\theta|=\theta_{L_1}-\theta_{L_2}>0$ and $\theta_{ij}$ is factor $i$'s distributive share in industry $j$. Substituting equations (A3) and (A4) into equation (A2) gives:

$$\hat{Y}_n=(\theta_{Ln}-\theta_{L_2})/(|\theta|)\hat{P}_1-(\theta_{Ln}-\theta_{L_1})/(|\theta|)\hat{P}_2, \quad (A5)$$

which yields an ambiguous answer in terms of non-emigrant income. For example, if $\hat{P}_1=0>\hat{P}_2$ and labour contributes 50% of non-emigrant income, since $\theta_{Ln}-\theta_{L_1}<0$, $|\theta|>0$, and $\hat{P}_2<0$, $\hat{Y}_n<0$.

Up to now we have only considered a closed economy. In the spirit of Griffin's model let $X_2$ be a traded good and $X_1$ non-traded.[7] This frees relative prices and hence factor rewards to change in response to a change in the supply of labour which is all that is required to generate the above results. Focusing on the downward sloping marginal product of labour schedules is the message of the text.

*World Development*, Vol. 9, No. 3, p. 319, 1981.
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# Erratum

Psacharopoulos, George, 'Education, employment and inequality in LDCs', Vol. 9, No. 1 (January 1981), pp. 37–54.

On p. 39, the arrows and normative weights are misplaced. $W_1$ should be an exponent to the efficient ($\bar{Y}$) argument, and $W_2$ an exponent to the equity (1 − Gini coefficient) argument of the social welfare function.

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